

**Photoshop 2.5**  
Speed, quality of color separations improved

**LaserWriter Pro**  
Apple keeps competitive with new 600-dpi printers

**ArtZ**  
New Wacom digitizing tablet sets new standard

See Page 45

## Mac OS to invade PC space

*Apple may launch 486 version this year*

By Robert Hess

Cupertino, Calif. — An experiment under way at Apple may let users of high-end PCs boldly go where no Intel-based computer has gone before.

Code-named Star Trek, the project is a rewrite of System 7.1 designed to give users of IBM PCs and compatibles an alternative to Microsoft Windows, sources said. The system reportedly will run on any PC that uses an Intel 486 and

meets other hardware requirements.

The project, according to sources, is an offshoot of an older skunkworks effort to explore whether it would be possible to get the Mac operating system to work on the Intel architecture. Once that project demonstrated the feasibility of the idea, Apple officials reportedly decided to pursue it seriously. Several software-development teams were recently combined into a larger group dedicated to bringing Star Trek to market this year.

But the company has not made a final commitment to release the software, sources said.

See Star Trek, Page 112

## Apple cameras will put snapshots on Mac desktop

By Matthew Rothenberg

Cupertino, Calif. — Apple is focusing on electronic color photography with a pair of handheld digital still cameras, sources said.

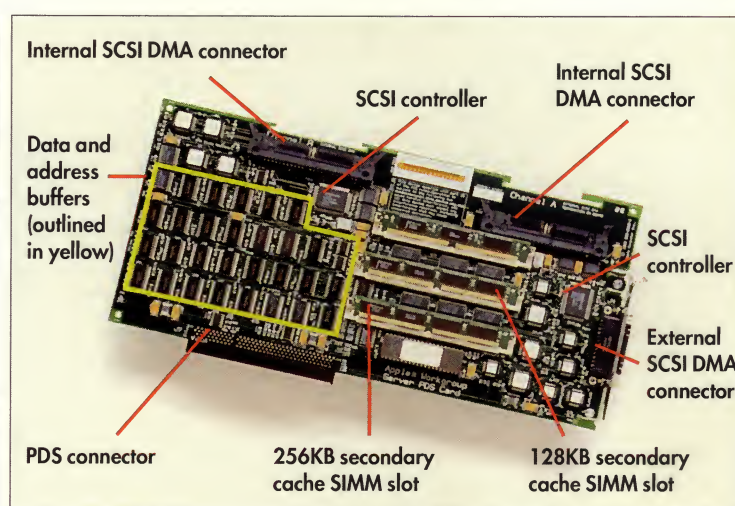
The 24-bit-color cameras, code-named Mars and Venus, are based on technology from Fuji Photo Film Co. Ltd. of Tokyo, according to sources. The devices may debut as early as August's Macworld Expo in Boston.

► **Mars.** The higher-end camera is expected to cost less than \$2,000 and support a resolution of about 450 lines. It reportedly will store images on a PCMCIA card. Users will be able to download photos to their CPU via a serial interface and transfer the card to a Newton for wireless transmission, sources said.

Mars is based on the Fujix DS-H2, which Fuji introduced for the Japanese market at Macworld Tokyo in February (see MacWEEK, Feb. 22). The company last week said it has no plans to distribute the camera in the United States.

Fuji's device, which weighs about 1 pound, 3 ounces, can store up to 40 images on a 16-Mbit PCMCIA card. It features a 390,000-pixel RGB (red, green, blue) CCD (charge-coupled device) sensor; automatic focusing; an electronic shutter capable of speeds from 0.25 to 0.0013 seconds; and a built-in automatic flash.

See Cameras, Page 111



## New servers will bring '040 punch to Mac nets

*Three versions set for CeBIT rollout*

By Mitch Ratcliffe

San Francisco — Apple this week will introduce a family of 68040-based servers that support file and print, database, backup, and groupware services for AppleTalk networks.

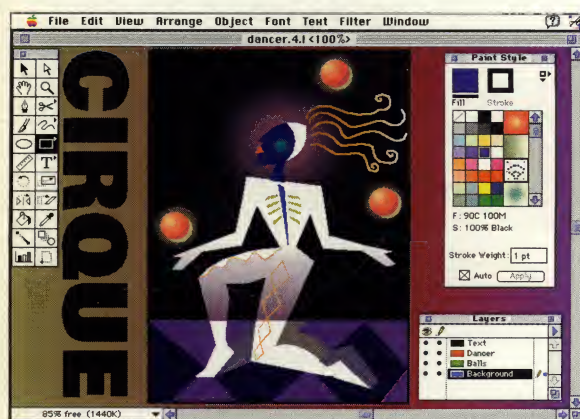
The company's Enterprise Systems Division will roll out three Apple Workgroup Server packages at CeBIT '93 in Hanover, Germany. The servers will be introduced along

with AppleSearch, a server-based text search-and-retrieval package (see story, Page 4).

The centerpiece of the server lineup, the AWS 95, is due by the end of next month. It will include a Quadra 950 with an I/O-accelerating processor direct slot card; A/UX 3.0.1, a new release of Apple's Unix operating system optimized for the server; and AppleShare Pro, a new version of the company's file and print server software, rewritten to take advantage of Unix and the PDS card.

The AWS 95 will offer more than four times the performance of

See Servers, Page 111



Adobe Illustrator 5.0 will add floating palettes that let users create, edit and access custom colors and unlimited layers.

## Filters, layers and preview editing add ease, power to Illustrator 5.0

By Kirsten L. Parkinson

Mountain View, Calif. — Adobe Systems Inc. this week will unveil an upgrade to Illustrator that observers say will make the PostScript illustration program significantly easier to use.

The newest release of the \$595 program, due in the second quarter, will jump from Version 3.2 to Version 5.0. According to the company, it will leapfrog Version 4.0 for Windows, which was released last May.

Features of Illustrator 5.0 include:

► **Filters.** A series of plug-in filters, comparable to those used for image processing in Adobe Photoshop, will enable Illustrator 5.0 users to create and manipulate objects quickly.

With the Pathfinder filters, users will be able to create new shapes or effects by selecting areas from several objects. For example, the Intersect filter will produce a new object

See Illustrator, Page 112

### Special Report

## Getting ready for RISC



What to expect from Apple's PowerPCs

See Page 36

### News Analysis

## Servers pitched to installed base

By Mitch Ratcliffe and April Streater

San Francisco — Officials of Apple's Enterprise Systems Division described this week's rollout of the Apple Workgroup Servers as the 1-year-old division's coming-out party. Users and analysts said that while Apple's support for mostly Mac networks has noticeably matured, the company isn't quite ready to keep corporate company.

The three Apple Workgroup Servers are targeted at specific niches in Apple's fragment of the computing market. The AWS 950 is

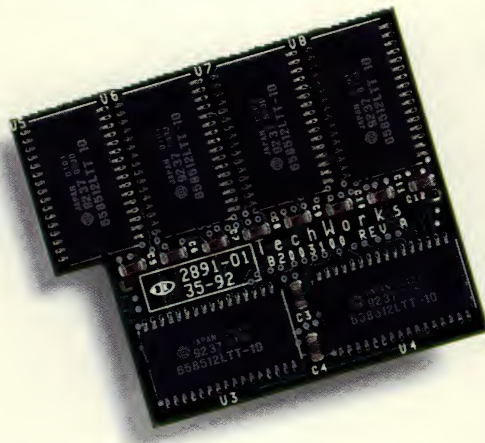
designed to serve large workgroups of up to 200 people. The AWS 80 is positioned as a server for medium-size workgroups and as a platform for communications software, such as the new AppleTalk Internet Router and X.25, X.400 and Systems Network Architecture gateways. The AWS 60 is tuned to support Mac users in small offices and educational settings.

Traditional cadres of Mac fanatics, such as graphics and marketing departments, should snap up these

See Market, Page 111



# BUY

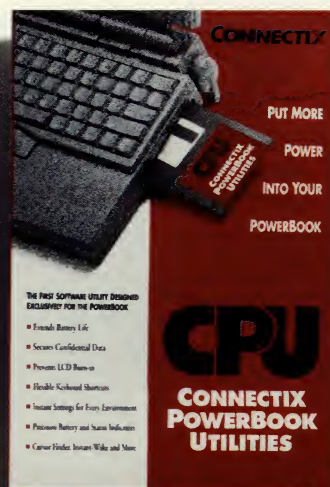


ANY TECHWORKS POWERRAM™ MEMORY UPGRADE

# GET



AND



SPIRAL™, THE ELECTRONIC NOTE-TAKING TOOL FOR THE POWERBOOK, A \$129 VALUE!

CPU FROM CONNECTIX, 5 GREAT POWERBOOK UTILITIES, A \$99 VALUE!

2 AWARD-WINNING PRODUCTS FREE! HURRY, THIS OFFER WON'T LAST LONG!

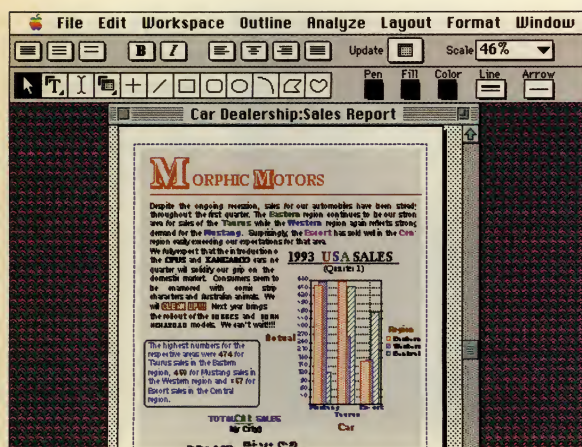
## CALL NOW!: 800-879-7745

INTERNATIONAL INQUIRIES CALL: 512-794-8533

# TECHWORKS™







Objective Software's SpreadBase 1.1 will be bundled with Brio Technologies' DataPrism data dipper to give users more powerful analytical capabilities when working with SQL databases.

## SpreadBase upgrade to use DataPrism to get SQL data

By Mitch Ratcliffe

Redwood City, Calif. — Objective Software Inc. and Brio Technologies Inc. have teamed up to give users an analytic advantage when dealing with SQL databases.

Version 1.1 of Objective's SpreadBase category-based modeling application, due next month, will be bundled with Brio's \$399 DataPrism data dipper. The combination will let users analyze SQL data by creating ad hoc queries of information stored on Oracle, Sybase and other database servers. SpreadBase combines a spreadsheetlike interface with an internal relational database that lets users study connections between variables in a data set.

The applications will exchange data encapsulated in Structured Data Objects, which include the data value and type, as well as column headers for retrieved fields. Objective said DataPrism's ability to pass database information without stripping away relational pointers such as data type and column headers facilitates updates to an analysis.

"Tab-delimited imports eliminate the relationships in your data; that

makes importing secondary information very difficult," said Ed Forman, director of marketing at Objective. "People who wanted to go back to the database a second time have had to write elaborate macros to maintain data types and column headers in files imported from relational databases."

SpreadBase 1.1 will improve memory use and analytic capacity. The program now requires 20 Mbytes or more to conduct an analysis; Forman said Version 1.1 will require 8 Mbytes to run the same process. The new version will let users analyze 12,000 records compared with 4,000 now.

New support for Apple's Data Access Manager and Apple events will help integrate the table and database events suites in a version of SpreadBase due this summer, Objective said.

SpreadBase 1.0 costs \$695; pricing for Version 1.1 has not been set.

Objective Software Inc. is at 700 Chesapeake Drive, Redwood City, Calif. 94063. Phone (415) 306-7400; fax (415) 306-7404.

Brio Technologies Inc. is at 444 Castro St., Suite 700, Mountain View, Calif. 94041. Phone (415) 961-4110; fax (415) 961-4572. □

## Software lets admins manage via SNMP

By Nathalie Welch

Cupertino, Calif. — Apple has added a few more brush strokes to its enterprise networking initiative with software that lets network administrators manage Macs using SNMP.

The company this month released AppleTalk Connection for Macintosh, a package that combines the latest versions of the AppleTalk stack and drivers with MacSNMP, Apple's implementation of Simple Network Management Protocol. It includes agents and MIBs (Management Information Bases) that collect information about Mac hardware and software configurations and monitor the status of network links.

To read the data users will need a

third-party SNMP console on the Mac or a Unix workstation.

AppleTalk Connection for Macintosh sells for \$39 per user; a 20-user package is due next month for \$199.

Apple also released AppleTalk Administration for Macintosh, a \$199 package that includes the Mac and network agents plus MacSNMP administrative software.

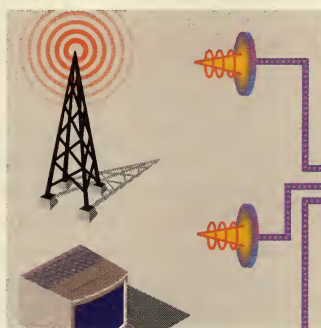
Similar software for monitoring Macs on TCP/IP networks is due next month. TCP/IP Connection for Macintosh, including MacTCP and the MacSNMP client software, will cost \$59 per single user and \$499 for a 20-user pack. TCP/IP Administration for Macintosh will list for \$499. □

## News

- 4 Apple's text-search software due in third quarter  
AppleSearch promises speedy retrieval from server.
- 6 Companies ship doc-imaging, -management systems  
PixTel/EFS and Optix WorkFlow client-server solutions help users store and retrieve documents.

## Gateways

- 16 DEC to upgrade Pathworks  
New version adds tools to simplify net configuration.
- 16 QuickMail 2.6 is in the mail  
Upgrade increases server reliability.
- 16 Measuring EMFs takes CommonSense  
Radiant releases AppleTalk-based EMF sensor.



## GA

- 22 Graphics users choose between SyQuest, MO  
SyQuest is the standard, but magneto-optical drives gaining fans as prices drop.
- 22 Torqueware lets Mac graphics apps tap SGI Indigo  
Torque Systems software works with 3-D renderers, PostScript RIPs, Photoshop filters.
- 26 Steve Rosenthal/New Media  
Transferring graphics from Mac to TV.

## BusinessWatch

- 28 Claris narrows product focus  
Three-pronged plan emphasizes database, graphics, integrated software.
- 28 Adobe posts solid results  
PostScript licensing fees, cost controls pave sales growth.

## Opinion

- 32 Editorial  
Are Apple servers really enterprise systems?
- 32 Commentary/Jean-Louis Gassée  
Buyer expectations may hit Newton in the head.
- 33 Letters  
Take my unresponsive AESC dealer, please.
- 33 Mac Manager/Don Crabb  
Great Mac database expectations.

## Special Report

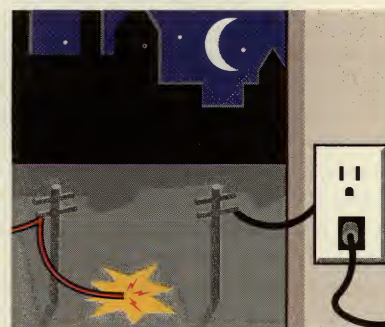
- 36 Getting ready for RISC  
MacWEEK looks at upcoming PowerPC-based Macs and examines what developers, managers and users expect from Apple's new RISC machines.

## Reviews



- 45 Photoshop upgrade nearly picture perfect  
Version 2.5 offers faster redraw, easy masking and new virtual-memory scheme for better RAM usage.
- 45 Apple LaserWriter Pros compete like champs  
RISC printers a little behind HP's LaserJet, but still better than existing 300-dpi printers.
- 50 Wacom draws on power of ArtZ  
Digitizing tablet attaches to ADB; features light pen and new driver software to customize pressure.

## ProductWatch



- 53 UPS systems to the rescue  
Backup power supplies help networks and managers ride out power failures without losing data.
- 56 MacInTouch/Ric Ford  
Tripping over Apple 32-bit System Enabler.
- 56 Ask David Ramsey  
You don't have to go back to Apple Menu Items.

## Mac the Knife

- 114 PowerPC silicon 2: The importance of being fast  
Second-generation silicon's scintillating speed.
- 58 Ad Showcase
- 61 Mail Order
- 92 Classified
- 109 Careers
- 112 Advertiser Index
- 113 Product Index

MacWEEK (ISSN 0892-8118) is published weekly, with the exception of Aug. 30, Nov. 22, and Dec. 20 and 27 by Coastal Associates Publishing, L.P., 1 Park Ave., New York, N.Y. 10016. Single copy price including postage: \$6. One-year subscription rate: U.S. \$99, Canada/Mexico U.S. \$200, International: U.S. \$325 (airmail). All orders must be prepaid. Direct subscription inquiries to Customer Service Department, MacWEEK, c/o JCI, P.O. Box 1766, Riverton, N.J. 08077-7366; (609) 461-2100. Changes of address require that a new application be filled out completely and include both new and old address. Allow 4-6 weeks for processing. Postmaster: Send address changes to MacWEEK, P.O. Box 1766, Riverton, N.J. 08077-7366. Second-class postage paid at New York and additional mailing offices. MacWEEK is an independent journal, not affiliated with Apple Computer Inc. Apple and Macintosh are trademarks of Apple Computer Inc. Entire contents copyright 1993 Coastal Associates Publishing, L.P. All rights reserved. Material in this publication may not be reproduced in any form without permission. Requests for permission should be directed to Chantal Lavelanet, 1 Park Ave., New York, N.Y. 10016. For information on reprints in quantities of 500 or more, write Carol Peters, Ziff-Davis Publishing Co., 1 Park Ave., New York, N.Y. 10016. MacWEEK is a registered trademark of Coastal Associates Publishing, L.P. Printed in U.S.A.



# AppleSearch to serve data to clients

*Will let users search indexed text quickly*

By Carolyn Said

Cupertino, Calif. — Along with its new servers, Apple this week will roll out client-server software that provides rapid access to large amounts of textual data.

AppleSearch, due in the third quarter, stores documents in their native file format on any 68040-based server. The software, which was code-named Bogart, will use Apple's XTND technology (not the new Translation Manager, as reported last week) to open the documents and an engine developed by Personal Library Software Inc. of Rockville, Md., to index them.

Pricing has not been set.

Apple said indexing typically occurs at a rate of about 15 Mbytes (equivalent to the text in three Bibles) per hour. Indexes consume about as much space again as the original files.

Users can create "personalized reporters," or agents, to search the contents of documents using natural-language queries and/or full Boolean logic. Searches can occur at scheduled intervals or on demand. Results are returned in a list ranked by relevance to the query; they also can appear in a newspaperlike format.

Apple said it hopes to offer Windows and DOS clients but declined to set a timetable.

Apple will offer an application programming interface and newspaper-customization kit to encourage third parties to take advantage of AppleSearch in their own products. A devel-

oper could, for example, create and distribute a client interface to a dial-up database of real-estate information.

Two providers of real-time information, Dow Jones Information Services and Mainstream Data Inc., said they can see a synergy between AppleSearch and their products — DowVision and Mainstream Newscast, respectively.

"We deliver news from a real-time news wire into [user-specified] folders. Then AppleSearch can pick up, index and make retrievable the information," said John Bennion, executive vice president of Mainstream Data in Salt Lake City. "We create the haystacks, then AppleSearch finds the needles."

Greg Smirin, project director for the Program for Management Development at the Harvard Business School in Cambridge, Mass., said, "Subscribing to any of these news feeds is like drinking from a fire hydrant." Smirin has just begun beta testing AppleSearch and hopes to use it "to control the huge mass of information provided by the Mainstream pipeline."

Smirin said AppleSearch's interface is "incredibly simple compared to the type of arcane searching methods in Nexis or other big commercial on-line databases."

However, he said, "It remains to be seen if we can turn the spigot tight enough so we get just the information that's relevant to us." □

## Apple servers bring documentation to light with bundled DocViewer

By Raines Cohen

Cupertino, Calif. — The servers Apple is announcing this week will come with a unique advantage for harried administrators: on-line documentation. The systems will include Apple DocViewer, a new electronic publishing system developed at Apple.

The software, released on developer CD-ROMs last fall, is designed specifically for on-screen viewing of documentation. It reads documents converted from some common word processing formats with a utility Apple does not currently plan to release. Unlike TeachText, the rudimentary text and picture reader Apple has shipped with the Mac for years, DocViewer supports formatted text. It also offers a number of navigation tools, including:

► **Outline.** Users can view a hierarchical table of contents for each document, expanding items of interest to see section headings within chapters.

► **Bookmarks.** Users can select

phrases and add them to a Bookmarks pop-up menu that scrolls to a particular place in the text.

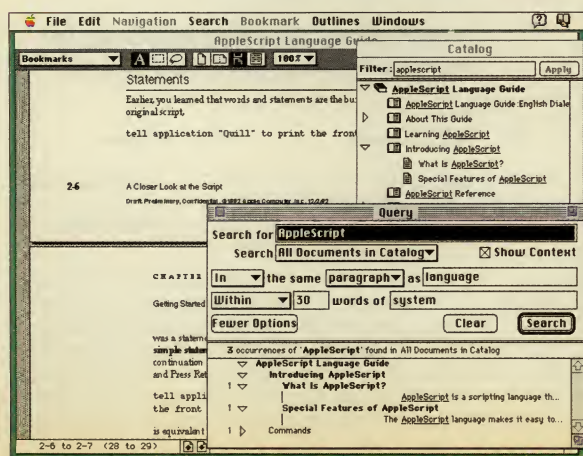
► **Searching.** The program can search for text and show all the occurrences in context. It can limit searches to instances that occur within the same paragraph or within a specified number of words of another term.

► **Index.** Documents can be indexed when they are created, allowing users to rapidly find every occurrence of a word, subject or phrase.

DocViewer users can also export the text of a document, select portions of documents with lasso and text-selection tools, reduce or enlarge text, and display text either in side-by-side formatted pages or in an unformatted view. Multiple documents can be open at one time.

Apple declined to say whether the document-creation utility will be released to the public and whether it could be licensed by third-party developers or corporate sites. □

Apple DocViewer, designed for reading documentation on-line, includes a table-of-contents browser (upper right) and a powerful search dialog (lower right) among other navigation tools.



TI's \$999 microWriter uses a 5-ppm Samsung LED engine and switches automatically between Adobe PostScript Level 1 and a PCL 4 emulation.

## TI to set new PostScript price low with under-\$1,000 laser printer

By Matthew Rothenberg

Austin — Texas Instruments Inc. next month will set a new price low with a PostScript laser printer that lists at less than \$1,000.

The microWriter uses a 5-page-per-minute, 300-dpi Samsung engine based on an LED engine and handles letter- or legal-size paper or transparencies. The printer switches automatically between Adobe PostScript Level 1 and a PCL 4 emulation.

It will be available in two configurations, the \$999 microWriter PS23 and the \$1,299 microWriter PS65, which will ship with 23 and 65 fonts, respectively. Users of the PS23 will be able to upgrade to the PS65.

The microWriter will ship with LocalTalk and Centronics parallel interfaces; an RS-232 serial port will be \$59.

The printer runs on a 16-MHz Motorola 68000 controller and includes a proprietary TI application-specific integrated circuit to increase imaging speed. It will come with 2 Mbytes of RAM, expandable to 4 Mbytes via a special memory board. Users will be able to update

fonts and emulations via ROM cards.

The microWriter will include a 250-sheet input tray and 200- and 30-sheet output trays. A second 250-sheet feeder will cost \$199, and a universal 50-sheet feeder will be \$99.

Digital Equipment Corp. has been offering the DEClaser 1152, its 4-ppm Level 2 printer, for an introductory price of \$999; it lists for \$1,299. Apple's new 5-ppm LaserWriter Select 310, which includes a RISC chip and comes with Level 1, lists for \$1,079. According to sources, Hewlett-Packard Co. is working on a 4-ppm Level 2 printer that may cost less than \$1,000.

TI also announced that it has cut the prices of its microLaser line of laser printers. The 9-ppm, RISC-based microLaser Turbo now costs \$1,649, down from \$1,799; the microLaser PS35 is \$1,399, down from \$1,549; and the microLaser PS17 is \$1,249, down from \$1,499.

Texas Instruments Inc.'s Information Technology Group is at P.O. Box 202230, Austin, Texas 78720-2230. Phone (817) 771-5856 or (800) 527-3500; fax (817) 774-6660. □

## MacWrite Pro has a secret: Scriptability

By Lisa Picarille

Santa Clara, Calif. — Although Claris Corp. didn't know it, users have discovered that MacWrite Pro can be controlled through Apple events.

The recently released word processor responds to several Apple events sent by applications such as UserLand Frontier 2.0 from UserLand Software Inc. of Redwood City, Calif. Users have reportedly developed a Frontier glue (installation) file that maps the events to Frontier verbs so Frontier scripts can control MacWrite Pro.

One of the program's developers secretly included support for a handful of events that add text to a MacWrite Pro document, position the cursor, find a selected range of text and change it, and read selected text. Claris had said it supported

only the four required Apple events.

MacWrite Pro will not immediately be scriptable with Apple's forthcoming scripting system, AppleScript. The word processor lacks an aete resource, the Apple event-naming resource that AppleScript and other Open Scripting Architecture-based systems use to determine what events an application supports.

Claris said it plans to support additional Apple events in a future release, but it made no promises regarding AppleScript scriptability or support for particular event suites.

WordPerfect for the Mac has its own built-in scripting language, controllable through the "do script" Apple event. Microsoft Corp. has promised to add scripting to a future version of Word. □

Cupertino, Calif. — Apple last week sharply reduced the cost of several logic-board upgrades.

► **Quadra 700 board.** Topping the list was a 36 percent cut on the Quadra 700 upgrade kit for the Mac IIcx and IIfx. Previously \$3,129, the kit is now \$1,999.

► **Quadra 950.** The Quadra 950 upgrade is now \$1,899, down from \$2,679. Available only to Quadra 900 users, it replaces the original Mac tower's 25-MHz 68040 with a 33-MHz version.

► **Mac IIfx.** Owners of the Mac II and IIfx can now upgrade to a Mac IIfx board for \$1,799. The six-slot upgrade was previously \$2,319.

Apple also reduced the price of the Windows configuration of its OneScanner to \$949, the same as the Mac version. The Windows version was previously \$1,059. □



# WE'VE JUST LAPPED CLARIS.®

Canvas™ has never been shy about its reputation for running circles around MacDraw® Pro. But even we are stunned by just how wide the performance gap has grown. Over the last couple years, while the competition's been idling, Canvas has been pouring it on. Winning converts by the thousand. And accumulating a trophy case full of top industry awards, including two MacUser 5-Mice Ratings (no other drawing program's received even one). One look at the feature differences, and you'll understand why. Canvas offers vastly more powerful text handling tools like binding to curves, shape wrapping, full kerning control, and font-to-Bézier conversion. Unrivalled technical drawing features like auto dimensioning, parallel lines and curves, and a SmartMouse™ drawing aid. Plus sophisticated design/illustration capabilities, including object combinations and object blends. Best of all, only Canvas is self-upgrading. Our exclusive Open Architecture allows you to totally customize your work environment — turning existing tools on and off at will, and "plugging in" a steady stream of brand new ones (like our red-hot Design, Imaging, and Utility ToolPAKS™) by simply dragging them into a designated folder. Here's what MacWeek had to say about this feature in their January '93 review of Canvas: "Being able to add more than 40 tools to a program simply by copying files into a folder adds remarkable power to that program. In Canvas' case, it reinforces its position as the best object-oriented drawing program money can buy." So if you're on the fence about which program to buy, or tired of being stuck in low gear with the one you bought, just get ahold of Canvas. And you'll never look back.


**MACDRAW® PRO,  
ILLUSTRATOR® AND  
FREEHAND™ USERS:  
GET A HOLD OF  
CANVAS FOR ONLY  
\$149, WHILE YOU  
CAN. TRADE UP NOW  
BY JUST CALLING  
1-305-596-5644.**

(Have your MasterCard, VISA or Amex card number & expiration date ready!) Or mail your original program disk to the address below, along with your credit card information or check drawn in US dollars on a US bank. Offer limited to the US and Canada, and ends June 30, 1993. Offer subject to change without notice.

# AGAIN.



## CANVAS™

THE HIGH PERFORMANCE DRAWING ENVIRONMENT FROM  SOFTWARE

This entire ad was created and color-separated in Canvas. For more information about Canvas ToolPAKS, call (305) 596-5644 or FAX: (305) 273-9069. Deneba Software, 7400 Southwest 87th Avenue, Miami, Florida, 33173. ©1993 Deneba Systems, Inc. Canvas™, SmartMouse™, and ToolPAKS™ are trademarks of Deneba Systems, Inc. MacDraw® is a registered trademark of Claris Corporation. Illustrator® is a registered trademark of Adobe Systems, Incorporated. Freehand™ is a trademark of Aldus Corporation.

596-5644 or FAX: (305) 273-9069. Deneba Software, 7400 Southwest 87th Avenue, Miami, Florida, 33173. ©1993 Deneba Systems, Inc. MacDraw® is a registered trademark of Claris Corporation.



MACUSER  
MAR '91  
MAR '92



MACWEEK  
TARGET  
AWARD  
JAN '92



MACWORLD  
MAY '93



MACUSER  
APRIL '90  
JAN '92



MACWEEK  
DIAMOND  
AWARD  
JAN '93



INFOWORLD  
DEC '91



# Optix WorkFlow has new routes

*Electronically sends documents to users*

By Kirsten L. Parkinson

Flint Hill, Va. — Blueridge Technologies next month will bolster its document-management system with a work-flow module for electronically routing documents along user-defined paths.

With Optix WorkFlow, a central administrator can create multiple routes for different types of electron-

ic documents. The system will then forward documents automatically to the proper person on the network.

For example, an insurance company could create routes for the various types of claims it receives. Optix WorkFlow would then send all auto-accident claims to the proper person for processing. When that user finishes work on the documents, they would be forwarded to the next person along the route, such as the person in charge of accounting.

Other features of WorkFlow include:

► **Parallel routes.** Users can set up parallel routes for tasks that can be completed simultaneously.

► **Ad hoc routes.** While users cannot edit the main route for a document, they can create ad hoc routes within the primary route for tasks that must be completed before they can forward the document.

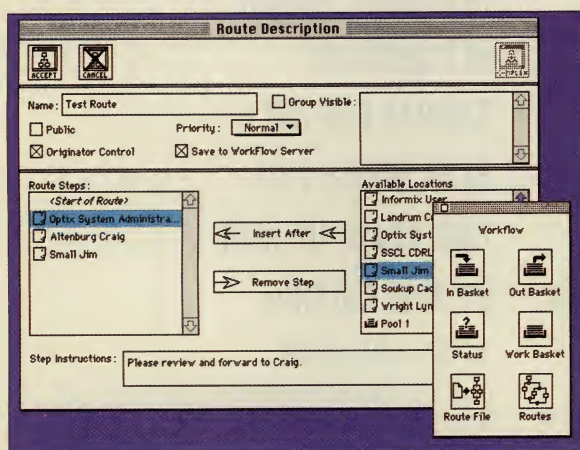
► **Duration.** The administrator can assign a duration to each step on a route, and Optix WorkFlow will automatically notify the administrator and the user when a particular step is not completed in the designated time.

The program supports documents created in Mac applications as well as images scanned using the company's document-imaging software.

Optix Network, the company's document-imaging and archival system, with WorkFlow starts at \$75,000 for 10 concurrent users. WorkFlow as an add-on module to Optix Network starts at \$40,000.

Blueridge Technologies is at P.O. Box 430, Flint Hill Square, Flint Hill, Va. 22627-0430. Phone (703) 675-3015; fax (703) 675-3130. □

**Optix WorkFlow from Blueridge Technologies lets administrators create routes for users to send electronic documents to other users on the network. A duration can be assigned to each step on the route.**



## HyperScript Tools to build database front ends

*New Informix suite runs across platforms*

By Bruce Wright

Menlo Park, Calif. — Informix Software Inc. this month announced HyperScript Tools, a development environment for building Mac, Windows and Motif database applications.

HyperScript Tools will let developers build graphical database front ends that incorporate the company's forthcoming Wingz 2.0 spreadsheet, business graphics and HyperCard-like presentations.

Informix will support access to its own database servers, as well as SQL and flat-file data through

Apple's Data Access Language (DAL) and Microsoft Corp.'s Open Database Connectivity (ODBC) scheme.

The HyperScript suite includes:

► **Portfolio tool.** Developers can import data onto a portfolio "canvas," which the company said is similar to a HyperCard stack. Users will be able to navigate in portfolios by clicking buttons and hyperlinked text.

► **Wingz 2.0.** The next version of Informix's spreadsheet and business graphics application, due later this year, will be bundled with HyperScript Tools. Wingz will allow importation of large data sets for analysis. Results can be displayed in a variety of charts, including 3-D views with dynamic rotation, and variable light sources.

► **Script editor.** Developers will create HyperScript applications using an English-like, event-driven language.

► **Help tool.** Context-sensitive help files can be built into end-user applications.

Relational queries can be embedded into HyperScript applications to provide preconfigured access to database information.

Mac users will also be able to access databases through DAL and

ODBC, which will be supported in an upcoming version of DAL, according to Apple.

HyperScript Tools for Windows is due in June for \$2,495. Runtime licenses will be \$400.

Pricing for the Mac version, due in the fall, is not set but will be similar to the Windows version.

Informix Software Inc. is at 4100 Bohannon Drive, Menlo Park, Calif. 94025. Phone (415) 926-6300; fax (415) 926-6593. □

## Applied '030 card accelerates entry-level Macs

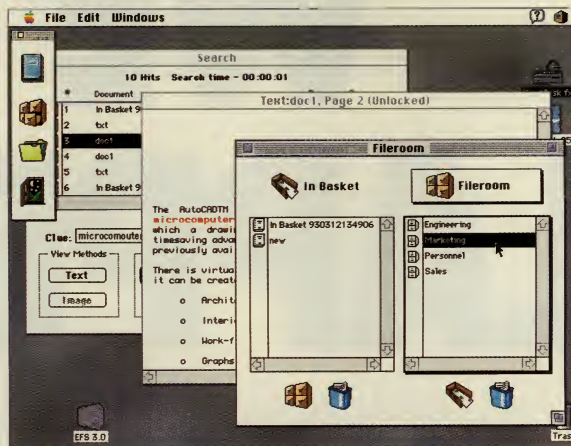
By Ian G. Jacobs

Dallas — Applied Engineering last week shipped three new 68030-based accelerator cards for entry-level Macs.

The new TransWarp 4300 family, designed for the LC, LC II, Performa 400 and Color Classic, offers a 128-Kbyte static-RAM cache.

The 25-MHz TransWarp 4325 is \$349, while the 40-MHz TransWarp 4340 is \$399. The 33-MHz TransWarp 4333v comes with support for System 7's virtual memory and costs \$449.

Applied is touting the cards as an alternative to Apple's \$599 LC III upgrade. It said, for example, that



PixTel/EFS organizes data using the metaphor of a file room with cabinets (front window). This search on "microcomputer" turned up 10 instances of "microcomputer" even though the query was misspelled.

## Excalibur adds Mac, Intel clients to PixTel/EFS imaging system

By Carolyn Said

San Diego — Excalibur Technologies Corp. this month updated its document-imaging system, extending it to Macintosh and Intel-based clients and adding more Unix servers and a raft of new features.

Users of PixTel/EFS 3.0 scan in or electronically transfer documents to the server, where they are converted to text by optical character recognition software, or converted by filters to ASCII text; automatically indexed at rates from 500 Kbytes to 5 Mbytes per minute, depending on server platform; and compressed at a ratio of 20-to-1.

The system uses pattern recognition-based retrieval, or "fuzzy logic" searching, to let client users perform free-form queries on full-text contents, document names and file labels. This allows users to find information even if documents are misfiled, queries are misspelled or OCR errors have been introduced, the company said.

PixTel/EFS 3.0, which previously ran only on Digital Equipment Corp. VAX/VMS servers, now supports Sun Microsystems Inc. SPARC-

stations and IBM Corp. RS/6000, Hewlett-Packard Co. 9000/7xx and DEC Ultrix machines as servers.

Other new features in Version 3.0 include thesaurus searching, which lets users associate synonym terms with a query; template OCR, which lets users set up OCR zones around particular areas of a page (such as articles, but not ads, in a newspaper); and launch and land, which lets users open documents with the application that created them, if it is available.

PixTel/EFS offers links to external databases such as Oracle, Informix, DEC Rdb, Sybase and Ingres. The system comes with Excalibur's own database format, which can be used instead of an external database.

Pricing varies based on configuration and number of clients but is about \$3,500 per user for up to 20 concurrent users on a VAX server and \$2,500 per user for up to 20 users on a Unix server. Pricing does not include external databases.

Excalibur Technologies Corp. is at 9255 Towne Centre Drive, San Diego, Calif. 92121. Phone (619) 625-7900; fax (619) 625-7901. □

### For the record

The March 15 issue omitted the final line of a story about Laser Communications Inc. The company's phone number is (717) 394-8634; fax (717) 396-9831.

A March 8 story on Multi-Access Computing Corp. transposed the telephone number. The correct number is (805) 964-2332.

ship a video expansion board that will deliver 16-bit color on 12-, 13- and 14-inch monitors and eight-bit color on monitors up to 19 inches. At the same time, it will release an Ethernet adapter for TransWarp-equipped Macs. Pricing for the video and Ethernet options is not set.

Applied offers a step-up program whereby users can upgrade to a faster version of the TransWarp for the difference in retail costs between the old card and the purchased one.

Applied Engineering, a division of AE Research Corp., is at 3210 Beltline, Dallas, Texas 75234. Phone (214) 241-6060 or (800) 554-6227; fax (214) 484-1365. □

the TransWarp 4340, which is \$200 less than the LC III upgrade, offers 64 percent better performance than the 25-MHz LC III.

The TransWarp cards have built-in expansion connectors to get the most out of the LC family's sole slot.

An optional 68882 math coprocessor is available in speeds to match the TransWarp card. The 25-MHz math coprocessor is \$109, the 33-MHz is \$114, and the 40-MHz chip is \$149.

All of the accelerators include a control panel that can disable the card's static-RAM cache and control the '030's built-in data and instruction caches.

Applied said in six weeks it will



Trade in a FastPath or  
GatorBox and save \$1600.  
Call 1-800-998-7761.

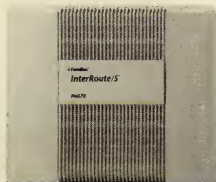


# Fuse LocalTalk and Ethernet.

**Our new InterRoute/5 connects 4 LocalTalk networks to Ethernet.**

#### InterRoute/5

- Full AppleTalk-TCP/IP gateway with routing of up to 4 LocalTalk and 1 Ethernet nets.
- Supports AppleTalk Phase 1, Phase 2 and transition routing.
- Supports TCP/IP: MacIP (incl. Telnet and MacTCP), IPtalk (incl. atalkad) and IP tunneling.
- Custom ASIC and 8 separate DMA channels for faster LocalTalk performance.
- 3-way management: in/out-of-band & SNMP.
- Flash EPROM for firmware upgrades via software.
- Includes StarCommand software for router & gateway configuration and management of all our hubs & routers.
- Large LocalTalk networks can be split into 4 smaller nets.
- Can mount in the new Farallon Concentrator for easily expandable network design.



Choose the wrong router, and you may be playing with fire.

Go with the new InterRoute/5™ and you've got one of the most versatile and reliable routers available.

The InterRoute/5 provides high-performance AppleTalk routing and full TCP/IP gateway services between four LocalTalk networks and Ethernet. It features a dual-bus architecture, a 16MHz processor, and quick five megabytes per second input/output. And it supports key standards like IPtalk,

MacIP, and IP tunneling.

The InterRoute/5 is easily managed and configured from any Mac with our unique StarCommand™ software which is included. Or use an SNMP console.

What's more, you can use the InterRoute/5 as a module in Farallon's new Concentrator for routing between LocalTalk and Ethernet modules.

It's one of the most powerful routers available. So give us a call for our free guide, "Building a Macintosh Network." **1-800-998-7761.**

 **Farallon**  
**Power to the network.™**





The Light Bulb 1879



Aspirin 1899

## The best inventions make you work

MultiSpin™ from NEC.

Thanks to pioneers like Thomas Edison, you don't remember what it was like to read by candlelight. And thanks to NEC's MultiSpin™ CD-ROM readers, you won't be able to remember a time when you couldn't transfer

data at a rate of 300 KB/second.

**We revolutionized CD-ROM.**

NEC was the first company to successfully bring dual-speed technology to market, and now has a complete family of readers designed to fit your needs. From our external MultiSpin 74 and internal MultiSpin 84, to our lightweight, portable MultiSpin 38.





The Refrigerator 1913



NEC MultiSpin CD-ROM Reader 1992

## Understand how you ever lived without them.

### Built for the future.

All of our readers support Kodak's Multisession Photo CD™ technology, so you can view photographs stored

on CD and work with those images on your computer.

All are SCSI 2 compatible, which increases compatibility across multiple platforms. And


back video without any pauses in motion. And the MultiSpin 38 gives you the power of portability. Best of all, the entire MultiSpin family comes with a two-year warranty.

**Multimedia's never been so easy.**


What's more, all of them are QuickTime™ compatible and meet the Multimedia PC (MPC) standards for Multimedia computing. Once you check out the high-performance CD-ROM readers from the pioneers of

MultiSpin technology, you'll find everything else about as primitive as sending mail through the pony express. To find out more, call 1-800-NEC-INFO (in Canada 1-800-343-4418). Or, via fax, call NEC FastFacts™ at 1-800-366-0476, request 23766.



Because  is the way you want to go.

# NEC

 In 1985 NEC redefined monitors with the invention of MultiSync® technology. Now there is MultiSpin. The technology that has redefined CD-ROM readers.

both the MultiSpin 74 and 84 have a 256 KB continuous flow cache that allows them to transfer encyclopedias of data at high speeds and play



# Transsoft connects Macs via SCSI

## Hard disk hub gives Macs fast file access

By Raines Cohen

Santa Barbara, Calif. — Transsoft Corp. last week shipped a new system that lets multiple Macs share files at SCSI speeds.

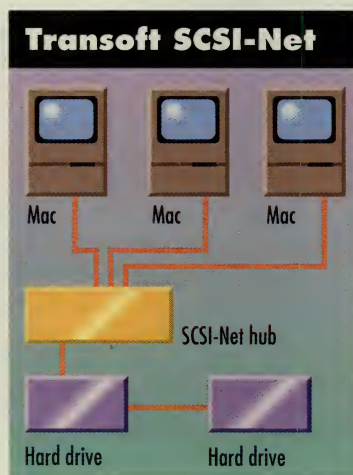
Transsoft SCSI-Net lets up to six users share access to a SCSI hard drive. The drive connects to the SCSI-Net hub and is partitioned so that each Mac has read-write access to one partition and all have read-only access to the others. A background application running on each Mac handles the partition management and mounting.

As a result, a file saved on the shared drive by one user can immediately be read by another at speeds of up to 5 Mbytes per second.

"SCSI-Net minimizes our need to network large files around our shop," said Kevin O'Neill, president of Image Axis Inc., an electronic image-retouching company in New York. "Four workstations have access at near-SCSI speeds, which is three to five times as fast as Ethernet. Every user mounts a partition on our main drive, so when we use our drum scanner and stick the file in the partition, it is immediately available for retouching."

"We found that [SCSI-Net] eliminated the need for a fiber solution for this set of workstations for the foreseeable future."

Standard Mac SCSI connections are "single-ended," which limits the total length of a SCSI chain to about 20 feet. SCSI-Net, however, supports another connection technology called "differential," which allows the chain to extend to more



than 80 feet. To take advantage of the differential option, Mac users will need either a converter such as Paralan Corp.'s Parallel-SD10 (see story, this page) or a differential adapter card, such as the Silicon-Express 3D from ATTO Technology Inc. of Amherst, N.Y.

SCSI-Net sells for \$5,995 in a six-user configuration. Purchasers can choose a system with either two standard and four differential SCSI ports or six standard connections. Although Transsoft's SCSI Director formatting software is included with the system, users can format shared partitions with other applications.

Transsoft said by August it will add support for multiple drives and communication between Macs. Once the latter is added, users will be able to choose SCSI-Net in the Network control panel and substitute it for the physical layer of an AppleTalk or other network.

Transsoft Corp. is at 31 Parker Way, Santa Barbara, Calif. 93101. Phone (805) 963-7181 or (800) 949-6463; fax (805) 963-7178. □

## Paralan box lengthens SCSI chain

By Henry Norr

San Diego — Paralan Corp. is now offering users a way to make their SCSI chain up to 200 feet long.

The company's Parallel-SD10 is an external converter that connects single-ended SCSI cabling — the standard variety supported by the Mac and most Mac SCSI peripherals — to differential cabling. On the single-ended side of the device, cables can total up to 20 feet; on the differential side, maximum cable length is 82 feet. With one converter installed, a differential device can be more

than 100 feet away from the Mac; with two converters, a standard single-ended device can be more than 200 feet away.

The \$475 device requires no changes to existing hardware or software, according to the company. It supports the full American National Standards Institute X3T9.2 SCSI standard, including such advanced features as disconnect-reconnect and Fast SCSI transfers of up to 10 Mbytes per second.

Paralan Corp. is at 7171 Ronson Road, San Diego, Calif. 92111. Phone (619) 560-7266; fax (619) 560-8929. □

## Latest Accel-a-Writer model offers 1,200 dpi

### Xante reduces prices on other units in line

By Neil McManus

Mobile, Ala. — Xante Corp. this month introduced a new 1,200-dpi version of the Accel-a-Writer 8100, its tabloid-size laser printer.

The company also dropped the prices of some 600-dpi models by as much as 30 percent.

► **Accel-a-Writer 8100.** Available now for \$6,695, the new 1,200-dpi Accel-a-Writer 8100 comes with 48 Mbytes of RAM, upgradable to 64 Mbytes.

Xante still is offering a 600-dpi version with 12 Mbytes of RAM for \$3,995, an 800-dpi version with 20

Mbytes of RAM for \$4,495 and a 960-dpi version with 32 Mbytes of RAM for \$5,495 (see MacWEEK, Sept. 21, 1992).

All Accel-a-Writer 8100 models are based on Canon U.S.A. Inc.'s new 8-page-per-minute BX engine and feature a 16-MHz AMD 29000 RISC processor. They come with PhoenixPage, a PostScript interpreter from Phoenix Technologies of Norwell, Mass.; 35 Type 1 fonts; a SCSI port for a hard disk; a 250-sheet input cassette; and simultaneously active AppleTalk, Centronics parallel and RS-232 serial interfaces.

Xante will offer a free ROM upgrade to Phoenix's Level 2 interpreter shortly after Apple releases the new Level 2 LaserWriter driver

next month, the company said.

► **Price cuts.** Xante this month reduced the price of its 8-ppm Accel-a-Writer 8000 to \$2,295, a \$1,000 reduction. The company also cut the price of its 4-ppm Accel-a-Writer 4000 to \$1,795, a \$700 drop. Both letter-size models offer a resolution of 600 dpi.

The company also cut \$500 off the price of its Accel-a-Writer Upgrade, which now retails for \$1,195. This package raises the resolution of many Apple LaserWriter and Hewlett Packard Co. LaserJet series laser printers to 600 dpi.

Xante Corp. is at 2559 Emogene St., Mobile, Ala. 36606. Phone (205) 476-8189; fax (205) 476-9421. □

# Mass Microsystems first vendor out of the gate with new SyQuest

## New 3.5" unit holds 105 MBs per cartridge

By Kirsten L. Parkinson

Sunnyvale, Calif. — Mass Microsystems Inc. hopes to become the first vendor to deliver the new 3.5-inch, 105-Mbyte SyQuest removable-cartridge drive to the Mac market.

Due this month, Mass Micro's DataPak 105 will come in two forms: a \$1,049 external model and a \$949 internal drive for the Quadra 800, 900 and 950; Centris 610 and 650; Mac IIvx; and Performa 600.

The drives offer an average seek time of 14.5 milliseconds and a sustained data transfer rate of 1.7

Mbytes per second. Each drive ships with one formatted cartridge and comes with a two-year warranty and toll-free technical support. Additional DataCart 105 formatted cartridges are \$139; unformatted cartridges are \$122. The cartridges carry a lifetime warranty.

The DataPak 105, which is not compatible with either SyQuest's 44-Mbyte or 88-Mbyte drives, is being marketed as an alternative to the 3.5-inch, 128-Mbyte magneto-optical technology, Mass Microsystems said. The company's optical drive currently lists for \$1,499.

Mass Microsystems Inc. is at 810 W. Maude Ave., Sunnyvale, Calif. 94086. Phone (408) 522-1200; fax (408) 733-5499. □

## ClubMac ships 5.25", half-height MO

Irvine, Calif. — The Mac mail-order company ClubMac this month shipped a high-capacity magneto-optical drive based on a 5.25-inch, half-height Sharp mechanism.

The Sharp JY-750 mechanism currently is the only half-height drive available in the 5.25-inch form factor. It offers an average seek time of 40 milliseconds, a sustained data transfer rate of 793 Kbytes per second and burst transfer rates of up to 1.5 Mbytes per second, ClubMac said.

While the drive has a standard formatted capacity of 595 Mbytes, it

can also be configured with a total capacity of 650 Mbytes and a sustained data transfer rate of 870 Mbytes per second.

An external drive is priced at \$2,299. An internal version for the Quadra 900 and 950, Centris 650, and Mac IIvx is \$2,279. Internal models for the Centris 610 and Quadra 800 are planned, although ship dates have not yet been determined.

ClubMac is at 3 Musick, Irvine, Calif. 92718. Phone (714) 768-8130 or (800) 258-2622; fax (714) 768-9354. □

### TOOL TAKES PAIN OUT OF SIMM REMOVAL

Seattle — Making it easier for users to upgrade memory, Stratos Innovations has shipped a tool to extract SIMMs from their sockets.

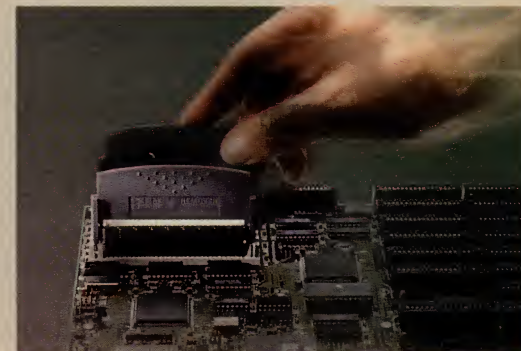
The \$12.99

SIMM Remover is constructed from an anti-static plastic that the company said will not accumulate or discharge static electricity, shielding the circuit boards from electrical damage.

The tool slides over the SIMM, hooks into holes in the card's body and detaches it from all types of sockets.

Several memory distributors, such as PNY Electronics Inc. of Moonachie, N.J., bundle SIMM Remover with their products; it is also available from catalogs such as MacWarehouse or directly from Stratos.

Stratos Innovations is at 2025 First Ave., Market Place Tower PH-B, Seattle, Wash. 98121. Phone (206) 448-1388; fax (206) 448-7830.





# IT MAKES WORKING WITH YOUR HOST A COLLABORATION. NOT A COMPROMISE.

When it comes to friendliness and ease of use, a mainframe is the antithesis of a Macintosh®. But with IRMA™ WorkStation for Macintosh, your Mac® can become a full partner with your host, creating a powerful synergistic collaboration.

IRMA WorkStation for Macintosh now adds NetWare for SAA® and TN3270



It runs with  
NetWare  
IWM now supports NetWare for SAA.

over TCP/IP support to an already impressive list of connectivity options. It includes productivity enhancers like

KeyStroke Macros, to automate common tasks; QuickPad™ and QuickHit™, for point-and-click navigation of host applications; and QuickPoints™, to simultaneously resize screen and fonts.

The recent merger

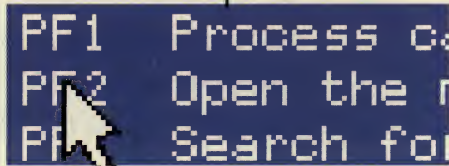


QuickPad, QuickHit and QuickPoint productivity enhancers, multiple sessions, APA graphics and full System 7 support are just a few of IWM's strengths.

with Avatar® has further strengthened DCA's commitment to the Mac marketplace. And now, our

combined resources are focused on advancing the most comprehensive suite of Mac connectivity products ever. In fact, we offer the only

complete line of Mac-to-host software and token-ring and coax hardware. As well as the only family of micro-to-host solutions for



QuickHit lets you execute PF keys with a click.

Mac, DOS, Windows™ and OS/2®.

Until June 30, you can trade up to IWM from an earlier version—or any competitive product—for only \$95 through the DCAdvantage™ Program. (The price can be even less, when you buy MultiPaks of 10, 50 or 100.) You can also call for free demo disks and our new Mac Enterprise Connectivity Guide.

## IRMA WORKSTATION FOR MACINTOSH

<b>HOST CONNECTION:</b> CUT, DFT, 802.2, TN3270 over TCP/IP.	<b>FILE TRANSFER:</b> DCA® FT/Express™, IRMALINK® FT/TSO and FT/CMS, IBM IND\$FILE.
<b>GATEWAY CLIENT SUPPORT:</b> NetWare for SAA, IRMALAN™/ EP, DCA/Microsoft® Select™ Comm Server,** DEC GAI,*** IBM® OS/2 EE and PC3270.	<b>API SUPPORT:</b> HLLAPI, Application Development Tool Kit.

So stop compromising. Call 1-800-348-3221, ext. 40H\*, and be part of a powerful collaboration.

THE FREEDOM  
TO COMMUNICATE.

DCA

\*Or call (404) 475-8380 if outside the U.S. and Canada. Offer available in U.S. and Canada only, through 6/30/93. ©1993 Digital Communications Associates, Inc. All rights reserved. DCA and IRMALINK are registered trademarks and IRMA, DCAdvantage, QuickPad, QuickHit, QuickPoint, FT/Express, IRMALAN and Select are trademarks of Digital Communications Associates, Inc. Windows is a trademark of Microsoft Corporation. All other trademarks are property of their owners. \*\*Coming soon. \*\*\*With Avatar's MacMainFrame.



# Traveling Mac users can get teleprompting

## MagicScroll 2.0 runs on PB Duos

By Carolyn Said

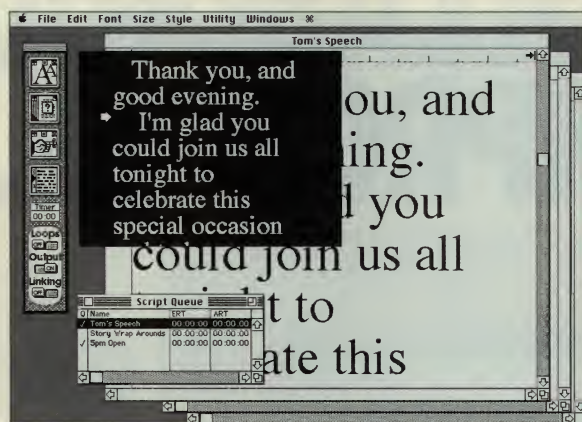
San Francisco — Teleprompting, a technique used by public speakers ranging from TV newscasters to the president, is available to Mac users with a package from Magic Teleprompting Inc.

MagicScroll, which the company recently updated to Version 2.0, scrolls a Mac text file across any NTSC video monitor for easy reading from the podium. It can be set to scroll either automatically at a user-determined speed or by manual control.

Version 2.0 now works on PowerBook Duos equipped with a PowerLink Presentor dock from E-Machines Inc. It adds a Script Queue window, allowing users to link and cycle through several scripts. A new on-screen NTSC window lets the Mac operator see exactly what is being shown on the video monitor.

Other new features include a built-in stopwatch, temporary markers called paper clips, complete margin control, an adjustable on-screen cue arrow and faster text editing.

Like the previous version, MagicScroll 2.0 offers cut, copy and paste of text; permanent, nameable markers called bookmarks; loops; invert (white text on black background); find and find/replace; and multiple open scripts. It works with PostScript and TrueType fonts.



Version 2.0 of the MagicScroll teleprompter software adds a new NTSC display window showing the Mac operator exactly what is on the video monitor.

The program requires an eight-bit display card. Magic Teleprompting said compatible cards include Truevision's Inc.'s NuVista and E-Machines' Doublecolor.

MagicScroll previously sold for \$3,500 bundled with an Apple

eight-bit video card. It now sells for \$3,300 for the software only. Upgrades are free.

Magic Teleprompting Inc. is at 1390 Waller St., San Francisco, Calif. 94117. Phone (415) 626-5283; fax (415) 626-2762. □

## XVT-Design++ to bring GUI app-building across platforms

By April Streeter

Boulder, Colo. — Users can build graphical interfaces for applications and port them between the Macintosh, Windows, Unix and OS/2 environments with a set of C++ development tools recently announced from XVT Software Inc.

XVT-Design++ will be available in the second quarter for \$1,395 for Mac or Windows versions and \$3,095 for versions that run on Sun

Microsystems Inc. workstations or IBM Corp. OS/2 systems. The program will allow users to create graphical interfaces on one platform and use them on other supported platforms without writing any code.

XVT-Design++'s feature set is similar to that of the company's XVT-Design, a C development package, but will include object libraries necessary for C++ programming and an object-oriented framework that gives users a skeleton from which to build applications.

Other Design++ features are:

► **Interactive tool.** Choosing from menus, developers will be able to create interface objects, such as windows, and specify connections between them.

► **C++ code fragment editor.** Part of the interactive tool, the fragment editor will let developers write C++ code and directly attach it to the graphic object.

► **Portability Toolkit.** For an additional \$1,450, the tool kit will allow the entire application — code and interface — to be ported to a variety of platforms.

XVT is offering users of the XVT++ utility who are covered by a current maintenance program an upgrade to Design++ for \$200. Design++ and the Portability Toolkit can be purchased as a bundle for \$2,195.

XVT Software Inc. is at 4900 Pearl East Circle, Boulder, Colo. 80501. Phone (303) 443-4223; fax (303) 443-0969. □

## NEC offering users the chance to trade in old CD-ROM drives

By April Streeter

Wood Dale, Ill. — Last month NEC Technologies Inc. put a faster spin on its portable CD-ROM reader. This month it is offering users of older NEC players a way to trade up to the portable and other new models.

NEC was the first CD-ROM-player vendor to offer two spin speeds in a disc player: 150 Kbytes for audio data and 300 Kbytes for nonaudio data. Called MultiSpin, the technology was included first in the \$615 MultiSpin 84, and since February in NEC's portable \$465 MultiSpin 38. Both players support multisession Kodak Photo CDs.

Through June 30, users of NEC's older InterSect CDR-84 and CDR-37 models can pay \$229 and \$179, respectively, and send in

their players. NEC will send back the newer drives.

Aside from the multisession Photo CD capabilities, an upgrade from the CDR-84 includes a larger cache of 256 Kbytes in the MultiSpin 84, compared with the old model's 64-Kbyte cache.

The upgrade from the portable CDR-37 to the MultiSpin 38 gives the user the variable spin rate and multisession features; the 64-Kbyte cache stays the same.

Users must shoulder the cost of shipping to NEC. The company said new readers arrive to users in about a week.

NEC Technologies Inc., a subsidiary of NEC Corp., is at 1255 Michael Drive, Wood Dale, Ill. 60191. Phone (708) 860-9500 or (800) 388-8888; fax (708) 860-9263. □



## News

### BRIEFS

#### Toshiba driver upgraded for Photo CD

Irvine, Calif. — Toshiba America Information Systems Inc. this month upgraded its TXM3301 CD-ROM drive to support the Kodak Photo CD format and improve compatibility with new Macs.

A new release of the company's software driver, Version 1.5.2, enables the drive to read single-session Photo CDs. It comes with a new control panel for the 68040-based Quadra and Centris lines.

The driver upgrade is priced at \$15, or free to users who purchased a drive within the past 90 days.

To read multisession Photo CDs, users need both the new driver and a ROM upgrade, which are available together for \$99.

Toshiba America Information Systems Inc.'s DPD Small Parts Department, which is handling the upgrade, is at 9740 Irvine Blvd., P.O. Box 19724, Irvine, Calif. 92713. Phone (714) 583-3129; fax (714) 587-6144.

#### RightWriter 5 price reduced to \$49.95

Carmel, Ind. — Que Software last month reduced the price of RightWriter 5, its Mac grammar, style and spelling checker, from \$99.95 to \$49.95.

RightWriter 5 for the Mac checks word processing documents for errors in grammar, style, word usage, structure, capitalization, punctuation and spelling and shows recommended changes. The application can read files created by most common Mac word processors. Que Software, a unit of Paramount Publishing's Prentice Hall Computer Publishing division, also cut the price of the Windows and DOS versions of the program.

Que Software is at 11711 N. College Ave., Carmel, Ind. 46032-5634. Phone (317) 573-2500 or (800) 992-0244; fax (317) 573-2655.

#### Fishing for ideas gets more affordable

Irvine, Calif. — In a move aimed at expanding its user base, IdeaFisher Systems Inc. this month dramatically cut the price of its IdeaFisher brainstorming application from \$595 to \$199.

IdeaFisher 2.0, which shipped last year (see MacWEEK, May 5, 1992), helps users generate ideas for strategic planning, research, writing and marketing.

The program includes a database of English words along with 10,000 questions that it selectively poses to help users formulate ideas. The program's plug-in modules, Strategic Planning and Presentation Planning, remain priced at \$99 and \$79, respectively.

IdeaFisher Systems Inc., formerly Fisher Idea Systems Inc., is at 2222 Martin St., Suite 110, Irvine, Calif. 92715. Phone (714) 474-8111 or (800) 289-4332; fax (714) 757-2896.





# With Apple Products on the Team, MacLinkPlus is the Most Powerful Solution for Mac-PC Data Exchange.

It takes real teamwork to get any job done these days, especially if you're dealing with incompatible Macintosh and PC files. That's why DataViz has teamed up with Apple to add even more utility to MacLinkPlus™. It's the most muscle ever assembled to overcome your toughest file translation problems between Macs and PCs.

For years, MacLinkPlus has set the standard for ease of use. And thanks to two new Apple products, what was once easy is now practically effortless. We now include Macintosh PC Exchange™ and Macintosh® Easy Open with every package of MacLinkPlus we ship. Macintosh PC Exchange makes DOS disks appear on the Mac desktop and shows their contents as Macintosh files and folders. New Macintosh Easy Open is a System 7™ extension that helps you open Mac or PC files when the application that created them isn't on your Mac. These technologies from Apple teamed with our translators offer the most complete solution to file transfer and translation available in a single package.

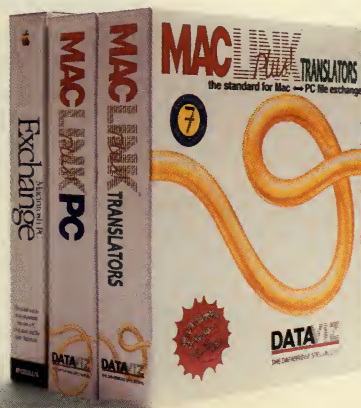
MacLinkPlus contains over 700 conversion paths to and from all popular word processing, spreadsheet, database and graphics applications. Files are converted quickly and easily, with all of their original formatting intact.

In addition to providing you with transfer capability, MacLinkPlus also translates files transferred via other methods. Such as disk mounting utilities like DOS Mounter and AccessPC, MS-DOS emulators such as SoftPC, and network software such as NetWare and LANtastic. Let MacLinkPlus do the work of converting foreign files transferred with these products into the exact format you need. MacLinkPlus/Translators contains the full translator library, Macintosh PC Exchange and Macintosh Easy Open. While MacLinkPlus/PC has all of these, it also allows you to connect a Mac and PC with the included serial cable or via modems.

If you're looking for the best in Mac-PC file translation, put MacLinkPlus on your team today. Call 1-800-733-0030, and look forward to some smooth sailing.

**DATAVIZ™**  
THE DATABRIDGE SPECIALISTS

Now every  
MacLinkPlus  
includes  
Macintosh PC  
Exchange  
and Macintosh  
Easy Open.





## MacFortran compiler goes System 7

By Bruce Wright

Rochester Hills, Mich. — Absoft Corp. this month shipped an upgrade to its Fortran compiler for the Mac, featuring an improved user-interface code library, code optimization and support for System 7 features.

MacFortran II Version 3.2, priced at \$595,

includes a revised MacFortran Runtime Window environment that automatically creates Mac interfaces for ported programs.

The compiler now includes libraries to help developers create applications that take advantage of System 7 features such as publish and subscribe, aliases, Apple events, and scripting.

Version 3.2 can accept mixed American National Standards Institute and VAX-formatted code and can perform conditional compilation. VAX and Unix compatibility libraries are included to help users develop portable applications. In addition, MacFortran II is compatible with other Absoft Fortran compilers for SPARC, IBM RS/6000, both DOS- and Unix-based IBM PCs and compatibles, and NeXTstep, among other platforms.

The new version can generate code opti-

mized for 68040 processors. This feature, when combined with the included 68040 math library, can increase application execution speed from 20 percent to 200 percent over 68020- and 68030-based Macs, according to Absoft.

Current users can upgrade to Version 3.2 for \$149 until May 15. Site licenses, quantity discounts and educational discounts are available.

Absoft Corp. is at 2781 Bond St., Rochester Hills, Mich. 48309. Phone (313) 853-0050; fax (313) 853-0108. □

## Thinking of Buying Norton Utilities or MacTools? Think again, think... SuperSet

Introducing Datawatch SuperSet Utilities™, five full-featured data recovery, protection and management products packed into one.

**Air Tight Disk and File Security**  
SuperSet lets you restrict access to your data with a powerful set of Citadel security tools. Use passwords to protect certain files or to lock entire hard disks and floppy drives. Datawatch



Citadel with Shredder™, a MACWORLD Editors' Choice, includes DES file encryption, and Shredder, which can turn your Trash Can into a secure document shredder. Only SuperSet

includes a complete, Editors' Choice security product.

### Double-Barreled Data Recovery

Datawatch 911 Utilities™ brings data back from damaged disks or files, and includes an extensive Troubleshooting Guide. 911 recovers files and disks the others can't. Complete Undelete™ lets you quickly and easily recover files deleted from the Trash.



### The Original Virus Eliminator

Virex®, a perennial best-seller, detects and repairs files infected by all known viruses. And it prevents future infections, even by unknown viruses. Only SuperSet includes a complete, best-selling anti-virus product.

### Super Remote Access and Control

ScreenLink™ lets you control another Mac's screen, keyboard and mouse over a network or via modem. ScreenLink works with both System 6.0.4 and later and System 7. Only SuperSet includes remote access and control capabilities.

Comparison with other Disk Utility Packages					
Product	Standalone Anti-Virus	Remote Access and Control	Disk & File Security	Disk & File Recovery	Undelete Capability
SuperSet	✓	✓	MACWORLD Editors' Choice	✓	✓
Norton Utilities			✓	✓	✓
MacTools	✓		✓	✓	✓

SuperSet costs no more than the others. So, see your favorite retailer for SuperSet today, or call us for your free *SuperSet Overview* at (919) 490-1277 ext. 205.



Datawatch Corporation

Triangle Software Division • PO Box 51489 • Durham, NC 27717  
(919) 490-1277 ext.205 FAX:490-6672 BBS: 419-1602 (8,1,N)

## Mac digital-cassette backup system ships

By Kirsten L. Parkinson

Troy, Ohio — Analog & Digital Peripherals Inc. this month shipped Macintosh models of its One For All digital-cassette backup systems.

Based on a 3.5-inch TEAC streaming tape mechanism, the drives are available in a 160-Mbyte model and a 600-Mbyte model that achieves a capacity of 1.2 Gbytes with on-the-fly hardware compression.

The \$1,295 160-Mbyte drive offers a data transfer rate of 7 Mbytes per minute, while the higher-capacity drive has a data transfer rate of 14 Mbytes per minute.

The drives ship with the company's MacBac backup software and a single digital-cassette tape.

Additional 160-Mbyte tapes are available for \$27 each or \$199.50 for a package of 10. The 600-Mbyte tapes are \$42 each or \$278 for a box of 10 tapes.

One For All models that include both parallel and SCSI ports also are available at the same prices.

Analog & Digital Peripherals Inc. is at P.O. Box 499, Troy, Ohio 45373. Phone (513) 339-2241; fax (513) 339-0070. □

## Compaq drops price of 15-ppm Pagemarq

Houston — Compaq Computer Corp. this month dropped the price of its 15-page-per-minute Pagemarq laser printer by 20 percent.

The Pagemarq 15 now retails for \$3,199, an \$800 reduction from its original list price.

The printer can output tabloid-size pages at a maximum resolution of 800 by 400 dpi and includes Adobe PostScript Level 2 and 43 Type 1 fonts.

The Pagemarq 15 comes standard with RS-232 serial and Centronics parallel interfaces; a LocalTalk interface sells for \$229, Ethernet for \$569 and token-ring for \$729. Compaq also offers a PostScript fax option for \$399.

The Pagemarq 15, originally introduced in September 1992, is based on a Fuji Xerox engine and includes a 16-MHz AMD 29000 RISC processor running on 4 Mbytes of RAM, which can be expanded to 18 Mbytes (see MacWEEK, Sept. 14, 1992).

Compaq Computer Corp. is at 20555 State Highway 249, Houston, Texas 77070. Phone (713) 370-0670; fax (713) 374-1740. □

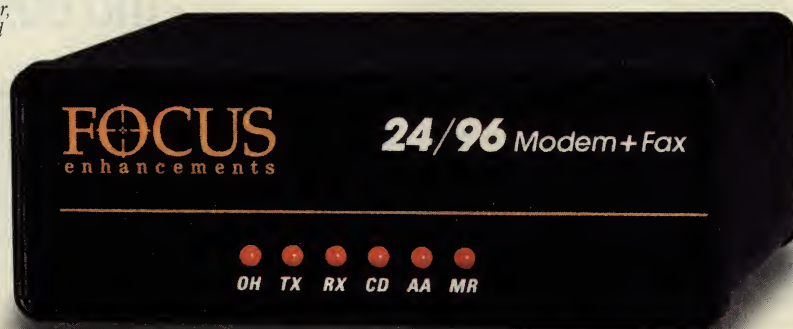


# Have Data, Will Travel

**Ready to Plug & Play**  
Everything you need is included: Software, Power Adaptor, all Cables and manuals.

**Small Size for Portability**  
Sleek and compact, about the size of a stack of 12 Macintosh floppy diskettes, this modem is well suited for life on the road.

**Focus 24/96 Modem + Fax** Replace costly couriers and overnight mail with our small yet powerful fax+data modem. Send faxes at 9600 bps, receive at 4800 bps, send data at 2400 bps. You'll be faxing in minutes with our FREE QuickLink II and FAXstf software.



**\$99<sup>99</sup>**



**Use your existing phone line**  
No need for a dedicated phone line. Shares your existing voice line. This modem differentiates between data and fax. Fax calls are accepted automatically.

**Both Modems arrive complete with Software and all cables**  
Includes Free FAXstf™ software and manual, and QuickLink II™ Data-Modem software plus all cables ready to Plug & Play.

**State of the Art High-Speed Performance** is yours with our world class 14.4 High Speed Modem. Uses the advanced Rockwell International Chip Set, Full Background Send and Receive, and certified Group III fax compatibility.

**\$299<sup>99</sup>**



**A Full 3-Year Warranty and 30-day Satisfaction Guarantee**  
Built to the latest high speed modem specifications, and assembled with Surface Mount Technology using robotic assembly methods, you can be assured of years of trouble-free operation. This sleek speedster is backed by a full Three Year Product Warranty and a 30-Day Moneyback Satisfaction Guarantee – if for any reason if you're not 100% satisfied within 30 days of purchase, return it for a full refund.



**The Performance Numbers:**

V.32 bis  
V.42 bis MNP-5  
V.42, MNP-2,3,4  
V.17, V.32, V.22bis, V.21,  
Bell 212A & 103  
14.4 Fax Send and Receive speeds,  
14.4 Data speeds, with auto fallback.  
Data transfer speeds up to 57,600 bps  
True RTS CTS.  
Hardware Handshaking.  
Hayes compatible AT command set.

## Save on State-of-the-Art Modems from Focus Enhancements.

When you feel the need for speed, modem your file instantly across town – or around the world.

Our **24/96 Fax + Data modem** lets you take the office fax machine with you. That's right, send fax messages directly from your Mac at 9600 baud. Without printing a sheet of paper to feed into the fax. Economical and Earth friendly. This is the perfect solution to the person who is sending correspondence, exchanging files with AppleTalk Remote Access, connecting to Bulletin Boards and information services. Its small size makes it an ideal traveling companion. At only \$129, the Focus 24/96 Fax+Data Modem is our price champion, with software and features found on modems costing hundreds more.

### PowerBook Fax Modems **\$99<sup>99</sup>**



Simply plug into your PowerBook and fax away. Includes FAXstf and Quicklink II software FREE.

**24/96 Internal FaxModem**

**\$299<sup>99</sup>**

**14.4 Internal FaxModem**

Completely internal, simply plug a standard phone cord right in your PowerBook and send & receive faxes. Access office mail systems & online services. Plugs into the internal modem slot and requires no battery or external power. Full 3-year warranty.



Our New 14.4 FaxModem can multiply your Communications Performance.

If you send large files and graphics, this is your answer. Simply put, this is the fastest modem you can get your hands on for less than \$500. Featuring the latest in High Speed technology and State of the Art manufacturing, this modem leaves nothing to be desired. And with our 3-Year Product Warranty, 30-Day 'Love It or Return It' Satisfaction Guarantee, you can be assured of many years of high-speed performance. Start reducing your delivery/messenger costs today. Call now to order your FaxModem and give your fax machine a rest.

**FOCUS**  
enhancements



**FREE**  
1993  
Buyer's  
Guide  
Just off the  
the presses!  
Hundreds of  
new Macintosh  
Enhancements.  
Call us Toll free:  
800-538-8866

Focus Enhancements, Inc. 800 West Cummings Park, Woburn, MA 01801-1096, Fax 617-938-7741.



# Gateways

► Networking  
► Communications



## Pathworks update refines controls

*Version 1.2 eases server configuration*

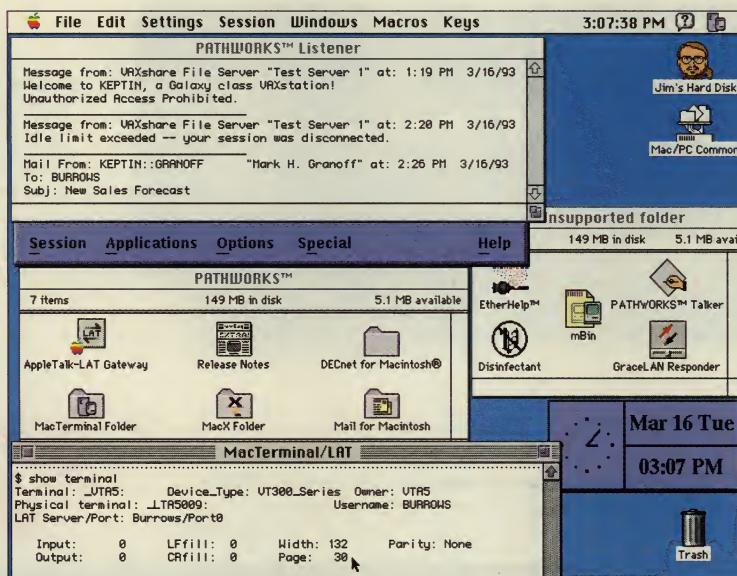
By Nathalie Welch

Littleton, Mass. — Digital Equipment Corp. this week will unveil an upgrade to Pathworks for Macintosh that offers several client enhancements and new tools to simplify network configuration.

Pathworks for Macintosh, which integrates Macs into DEC's VAX environment, provides file, print, electronic-mail and database services and lets Mac users communicate with DOS, Windows, OS/2, OpenVMS and Unix users also using Pathworks. The upgrade, Version 1.2, is due next month.

► **Server.** Administrators can configure the appearance of specific file-server volumes and printer queues, so users see relevant services in their local zone.

A new feature limiting the number of connections to a specific volume lets network administrators comply with application licenses that restrict the number of concurrent users. Administrators also can detect and disconnect inactive users from the file server.



Digital Equipment's upgraded Pathworks for Macintosh now offers clients E-mail notification and host status reports via the Pathworks Listener.

Support for the latest version of AFP (AppleTalk Filing Protocol) provides network administrators with more-detailed messages regarding system status and errors. The package also supports AppleTalk tunneling through DECnet wide-area networks, letting users connect to remote AppleTalk LANs over the new DECnet/Open Systems Interconnection

transport for OpenVMS systems.

► **Client.** A new Pathworks Listener application notifies users of new E-mail messages or alerts from the file server. DEC's upgraded MacTerminal 3.1 is included to offer support for viewing wide documents on screen, and new installation procedures make it easier to download the client software from

See Pathworks, Page 18

## Omnis 7 opens to externals, graphics

By Mitch Ratcliffe

Foster City, Calif. — Blyth Software Inc. last week shipped a new version of its cross-platform database application, Omnis 7.

Omnis 7 1.2 includes new support for compiled external commands and large graphics files stored in Omnis and SQL databases. The company said the release also fixes minor bugs.

Version 1.2 can use external commands that let an Omnis 7 application control a second, custom program running in a window within the Omnis interface. For example, a developer could create a front end that played QuickTime movies or imported PICT files, which users could modify using a custom painting tools provided by an external.

Support for externals may encourage the development of Omnis 7-compatible modules, such as graphing, forms and word processing applications, Blyth said.

Blyth also delivered color graphics support. A new Color Shared-Picture Format lets users store 256-color graphics in Omnis and third-party databases.

Some database-management systems provide limited support for color graphics. So, for instance, an Omnis front end to an Oracle6 database will support graphics of up to 64 Kbytes in size because that is the largest file supported by Oracle.

Omnis 7 1.2 is \$1,250 for the stand-alone development version; runtime licenses are \$250 and less per user, depending on volume. The network version, Omnis 7 Plus 1.2, is \$2,500; runtime licenses are priced from \$500 to \$125, depending on volume.

Blyth Software Inc. is at 1065 Hillsdale Blvd., Suite 300, Foster City, Calif. 94404. Phone (415) 571-0222 or (800) 346-6647; fax (415) 571-1132. □

## Tenon cuts price, reconfigures MachTen line

By April Streefer

Santa Barbara, Calif. — Tenon Intersystems Inc. this month announced price reductions, new features, and bundles of its Unix operating system and development tools for the Macintosh.

MachTen Personal 2.1 and MachTen Professional 2.1vm will be available in April for \$495 and \$695, respectively. Personal 2.1 folds together Unix kernel and development tools that had been offered separately. The Professional version includes additional source-code debuggers, the GNU C++ compiler and virtual-memory support. Both versions are based on Berkeley Standard Distribution 4.3 on top

See Tenon, Page 18

## QuickMail 2.6 improves admin, increases reliability of server

By Nathalie Welch

West Des Moines, Iowa — CE Software Inc. this week will ship the long-awaited QuickMail 2.6, and the company will launch a giveaway offer to attract new users.

Server and management improvements make up most of the changes to Version 2.6, which is now priced between \$649 for a 10-user pack and \$4,749 for a 100-user pack.

"They didn't really add anything; they just fixed what was there," said beta-tester Jay Kohn, system manager at Santa Clara, Calif.-based

Clarix Corp. "QuickMail used to be very sensitive to other network activity, but both client and server software are much more stable."

According to CE, QuickMail's server software was rewritten and now has a more reliable architecture.

"With the previous version, we did see some problems with a very small number of mail messages that would just disappear," said Mike Weasner, manager of network administration at Redondo Beach, Calif.-based TRW Inc. "The new server archi-

See QuickMail, Page 18

## Radiant releases sensor to measure electromagnetic fields, report results

By Raines Cohen

San Francisco — Concerned about the invisible electromagnetic fields in your office but frustrated by the difficulty of measuring them? Radiant Enterprises Inc. may help with the release this week of an AppleTalk-based EMF sensor.

CommonSense EMF consists of a base monitoring unit and up to four EMF sensor heads, each of which can be as far as 100 feet from the base unit. The base unit logs EMF data at user-specified intervals and periodically transmits the results to a Mac over an

AppleTalk network through a user-supplied LocalTalk connector.

The \$440 base unit comes with a HyperCard stack that can control the sensors and log, plot and export the data.

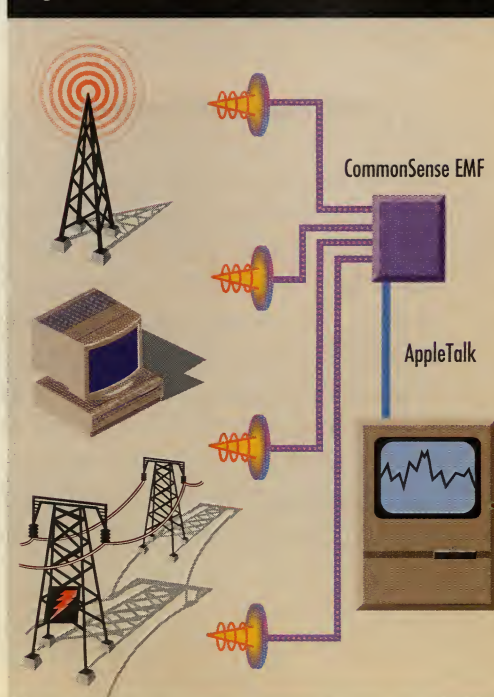
CommonSense EMF is based on the CommonSense CNX analog-to-digital converters Radiant announced last year.

Although the effects of prolonged, office-grade EMF exposure are not yet known, developing a database of employees' exposure over time may help businesses defend them-

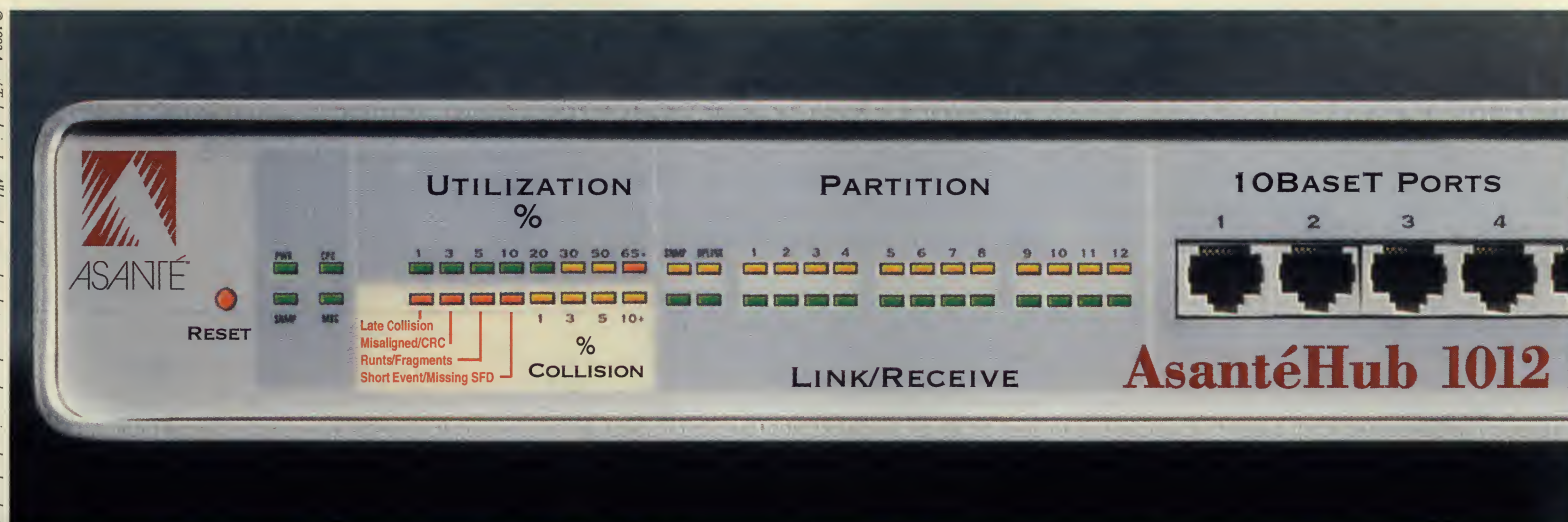
selves from liability lawsuits, Radiant said. Handheld EMF-level measurement devices are relatively expensive and, unlike CommonSense EMF, do not provide information about peak field levels, intermittent spikes or cumulative exposure, according to the company.

EMF sensors sell for \$349 in a tabletop/wall-mount version and \$369 in a handheld version. Radiant Enterprises Inc. is at 1714 Stockton St., San Francisco, Calif. 94133. Phone (415) 296-8040; fax (415) 392-6860. □

### CommonSense monitors EMF







# We call it a smart hub. You'll call it a smart choice.

**AsantéHub  
Is Now Available  
With Bridge Option**

The AsantéHub™ 1012 is a 12-port, intelligent 10BaseT hub that offers all the features and benefits of a high-end enterprise hub for a departmental price.

Combining the AsantéHub 1012 and AsantéView™ management software creates the industry's first smart hub with both in-band (SNMP) and out-of-band network management for both PCs and Macs® that uses the same graphical user interface. That means you can graphically monitor and control your entire network, locally or remotely, from your choice of computer platform.

## Smart Remote Network Management.

AsantéView gives you direct control of your network at the hub and port levels. The software can even trigger your pager to give you the flexibility to solve your office network problems when you're not there.

The AsantéHub includes a built-in expansion slot for internetworking option cards. Asanté offers an in-band SNMP hardware module as an option for this slot. The hub also features an RS-232 port for remote dial-up access, and both RJ-45 and RJ-21 connectors for direct-to-

computer or punch-down block connections.

There is also a 3-in-1 "13th" port for interconnecting multiple hubs with backbone cabling. This port includes BNC, RJ-45 and AUI connectors supporting a variety of cabling media.

## Asanté. The Smart Choice.

Asanté has built a reputation for producing compatible, reliable and flexible networking products. We offer a full family of Ethernet® and Token Ring® adapter cards for PCs and Macs. And a full line of 10BaseT hubs. We're the networking company of choice because we give you more choices.

**Hurry! Call us today for your free AsantéView demo disk, 1-800-662-9686, ext 301.**

Resellers: Asanté products are available from Gates/FA, Ingram Micro, Merisel, and Tech Data.



[ In-band or out-of-band network management from a Mac or PC, using the same graphical user interface. ]



[ 3-in-1 auto-switching redundant backbone port with software override capability. ]



[ Remote out-of-band management lets you manage your network from anywhere in the world. ]

**ASANTÉ™**  
ALL THE RIGHT CONNECTIONS™



# New FDDI component may drive down card prices

By April Streeter

Palo Alto, Calif. — Hewlett-Packard Co. this month announced a fiber-optic transceiver that the company predicts will push down prices for FDDI network cards.

The HFBR-5104 fiber transceiver, available in the second quarter for less than \$100, is two-thirds smaller and priced about \$50 less than transceivers current-

ly sold by HP and other vendors.

Vendors are divided on the effect of HP's technology on Fiber Distributed Data Interface (FDDI) adapters for Macs, which now cost between \$2,000 and \$3,000.

"By my estimates it should cost about 20 percent less to manufacture the adapters," said Rod Frazer, vice president of hardware product development at Impulse Technolo-

gy Inc. of Dahlonge, Ga. "With the lower-cost transceivers, it costs less to build adapters and is also cheaper to terminate them."

Frazer added that Impulse plans to release this summer a single-attached FDDI NuBus card using the new transceiver, priced at about \$1,500. Currently, the company's single-attached Spectra NB board is \$2,195.

HP, AT&T Co., Siemens Information Systems Inc. and BT&D Technologies Inc. all have said they will develop low-cost transceivers as well as transmitter-receiver port pairs used on some adapter boards.

Mark Murray, president of Team Advanced Systems Associates of San Diego, which makes a dual-attached FDDI NuBus card that uses transmitter-receiver port pairs, said pair component prices need to drop further than those now quoted by HP and other vendors before real cost breaks can be passed on to users.

Murray also had reservations about the limited signal range of the new, small-footprint transceivers. While desktop adapters, including Team ASA's, support FDDI's range of up to one mile between connections, HP's 5104 transceiver will be limited to just 150 meters. HP said it is developing components for release later this summer that will operate in the one-mile range. □

# Retix releases QM gateway to X.400

By Nathalie Welch

Santa Monica, Calif. — Retix this month shipped an X.400 gateway for CE Software Inc.'s QuickMail.

The \$1,795 QuickMail Gateway to X.400 must be used with Retix's DOS, OS/2 or Unix-based OpenServer 400. The gateway lets Mac users of QuickMail exchange electronic mail with local and remote X.400-compatible mail systems, such as IBM Corp.'s PROFS, Digital Equipment Corp.'s ALL-IN-1 and AT&T Mail.

The gateway also lets QuickMail talk to LAN-based E-mail systems that have X.400 gateways, such as Lotus Development Corp.'s cc:Mail, Microsoft Mail and WordPerfect Office.

OpenServer 400 for DOS is priced at about \$5,495, while the OS/2 or Unix version is \$5,950 for a

basic server configuration. QuickMail Gateway to X.400 can reside on the QuickMail server or a different, nondedicated Mac.

The Retix gateway competes with InterCon Systems Corp.'s Dispatcher/MacX.400 for QuickMail, which costs \$1,995 or \$2,995 and requires Apple's MacX.400 SD (Single Domain) or MacX.400 servers, priced at \$2,950 and \$4,950, respectively. WorldTalk Corp.'s \$2,500 WorldTalk 400 Gateway for QuickMail also is available. The gateway requires WorldTalk's 400 server, priced at \$19,950 for the Hewlett-Packard Co. 9000 platform or \$7,450 for a DOS-based server.

Retix is at 2401 Colorado Ave., Santa Monica, Calif. 90404-3563. Phone (310) 828-3400 or (800) 255-2333; fax (310) 828-2255. □

## Tenon

From Page 16

of a Mach 2.5 microkernel.

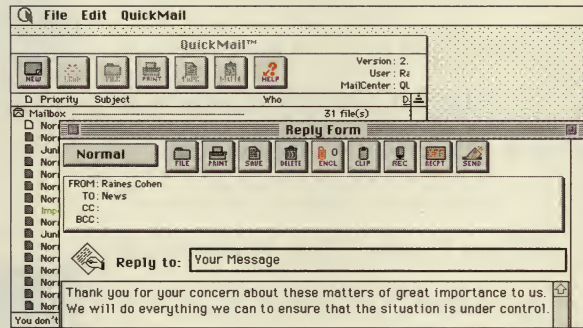
► **MachTen Personal** runs on any Mac with at least 4 Mbytes of RAM. It will let a Mac user switch between the System 7 Finder and a Unix command-line interface; users will be able to launch Macintosh applications from either environment.

Mach Ten supports TCP/IP and AppleTalk networking, FTP (File Transfer Protocol), Unix electronic mail, and Serial Line Internet Protocol. The new version adds token-ring capabilities.

► **MachTen Professional** requires a 68030 or 68040 Mac. Users will receive an array of kernel and development tools for building Unix applications. Professional 2.1vm supports Unix virtual memory instead of the Mac operating system's implementation.

Tenon's Unix system was previously available at \$595 for the kernel and operating system; developer tools sold for an additional \$395.

Tenon Intersystems Inc. is at 1123 Chapala St., Santa Barbara, Calif. 93101. Phone (805) 963-6983; fax (805) 962-8202. □



CE Software has spruced up its QuickMail client for Macintosh with larger, colored buttons and an Undo command for text editing.

## QuickMail

From Page 16

texture seems to take care of that."

The new version will be faster when forwarding mail to and from the file server-based MailCenters used by DOS QuickMail clients. "There are lots of nice new little things like the ability to export and import users and their mail," Weasner said. "As we move people around, it is really a jewel to have."

Users of prerelease versions weren't unqualified in their praise of the upgrade, however.

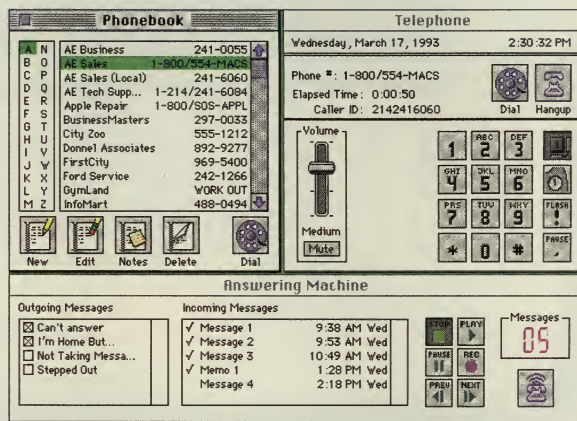
"QM Remote still stinks," said David Olson, assistant PC coordinator at Boston-based WGBH Education Foundation. "It's just too feature-laden, and we suggest that people purchase a terminal emulator

or use AppleTalk Remote Access."

All standard multi-user packs contain the QM Server, QM Administrator, DOS and Mac client software, several mail gateways, and a five-user version of ON Technology Inc.'s Meeting Maker group scheduling program. Upgrades are \$40 per server for users of QuickMail 2.5. Customers with earlier versions pay \$12 per user.

CE Software also announced a promotion that allows users to get free five-user QuickMail packs through resellers. The free package does not include gateways but is upgradable to the full version and does not have an embedded time limit.

CE Software Inc. is at P.O. Box 65580, 1801 Industrial Circle, West Des Moines, Iowa 50265. Phone (515) 224-1995; fax (515) 224-4534. □



CommPhone software, part of Applied Engineering's AErport mobile cellular communications system, provides screen-based telephone management on the PowerBook.

# AErport manages PB traffic with modem, phone bundle

By Nathalie Welch

Dallas — Applied Engineering is offering a cellular modem and telephone package for all-in-one PowerBooks that can lighten the weight of mobile users' briefcases — and wallets.

The AErport system, priced between \$2,500 and \$3,000, consists of the company's DataLink PB internal fax modem with cellular phone capabilities; DataLink PB CommPhone telephony software; and an internal PCMCIA slot, which replaces the floppy drive.

► **DataLink PB.** The internal modem offers V.32bis, 14.4-Kbps data transmission and V.17, 14.4-Kbps send-and-receive fax.

► **DataLink PB CommPhone.** The software package turns the modem into a voice telephone accessed via an earplug-size speaker-microphone combo, included in the package, or the PowerBook's own microphone and speaker.

The software supports phone-

book features including the ability to import and export unlimited entries, auto-dialing, and word-to-number dialing translation.

Digital answering machine features include support for Caller ID and caller codes, the ability to maintain multiple voice mailboxes, and an option to record outgoing messages for specific callers.

► **PCMCIA.** Applied has to remove the PowerBook's internal floppy drive to make room for the AErport components. With the room left over, the company adds a PCMCIA slot, which provides the interface to the now-external floppy drive. Applied plans to release a software upgrade within the year that will enable the slot to read standard PCMCIA cards.

Applied also offers the \$299 Axcell interface to connect the DataLink PB to an external cellular phone.

Applied Engineering is at 3210 Beltline Road, Suite 154, Dallas, Texas 75234. Phone (214) 241-6060; fax (214) 484-1365. □

## Pathworks

From Page 16

volumes on either Ultrix or OpenVMS servers.

"The Listener is a valuable piece when sitting on the VAX end," said Scott Thompson, mainframe systems manager at McDonnell Douglas Corp.'s Aerospace Systems Division in Houston. "I think that they intended to use it primarily for mail notification and DECnet events, but it can be used to communicate the status of the VAX services to those users connected to that server."

A Pathworks for Macintosh license is \$308 per user. Each license upgrade is \$77, but the client software disks and documentation costs \$200. Server software is \$245.

Digital Equipment Corp. is at 30 Porter Road, Littleton, Mass. 01460. Phone (508) 874-3111 or (800) 344-4825; fax (508) 493-8780. □

# Asanté and Dayna match Apple prices

San Francisco — Asanté Technologies Inc. and Dayna Communications Inc. this month dropped prices of the transceivers for Macs with built-in Ethernet.

The thin-net DaynaPORT TRX and 10BASE T DaynaPORT TRX-T transceivers, previously \$129, are now \$99.

Asanté's FriendlyNet adapters, which come in thick, thin and 10BASE T versions, were reduced from \$125 to \$99.

Asanté Technologies Inc. is at 821 Fox Lane, San Jose, Calif. 95131. Phone (408) 435-8401; fax (408) 432-1117.

Dayna Communications Inc. is at 50 S. Main St., Fifth Floor, Salt Lake City, Utah 84144. Phone (801) 269-7200; fax (801) 269-7363. □



# Our New Backup Software Is So Easy, Everyone Can Use It.



*"Thanks to SafeDeposit, I can now back up and restore my most critical files in just minutes."*

*"With just a couple of clicks, I can configure SafeDeposit to back up to floppy disk, high-density cartridge or a file server."*

*"SafeDeposit Server gives me up-to-the-minute backups of my AppleShare servers without shutting down the network."*

*"SafeDeposit and ARA let me back up my PowerBook files to the office network even when I'm on the road."*

Everyone needs backup, but most of us find it so complicated we just don't do it. Now there's a way to get the backup you need without the hassle.

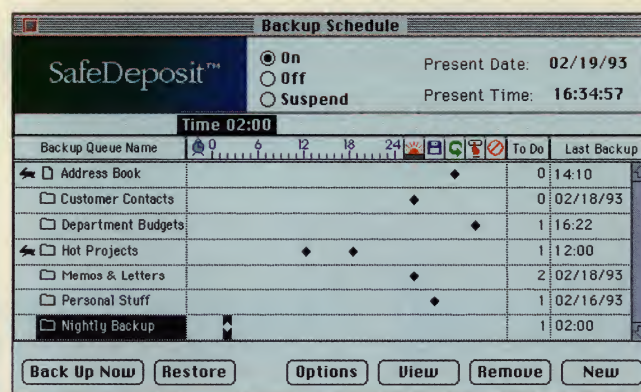
Introducing SafeDeposit™. Backup software so easy, everyone can use it. With just a few clicks, you can create a schedule of the files and folders you want to back up. You can choose any disk, high-density cartridge, magneto-optical drive or file server volume as your backup destination.

SafeDeposit can back up continuously, on command, at shutdown, on disk insert, or at any specified time of the day or night. The choice is yours. And all

backups are kept in Finder format, so there's never any complicated procedure when you need to restore files.

For AppleShare servers, SafeDeposit Server™ gives you the security of up-to-the-minute backup to any mountable volume. Files can be backed up by user and group. AppleShare privileges are preserved, and there's never any need to shut down the server.

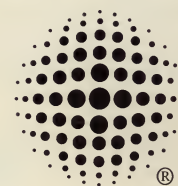
**Special  
Introductory  
Price \$99**



## BACKUP CHOICES

- Any Time
- At Shutdown
- On Disk Insert
- Continuously
- On Command
- Don't Backup

Ask your favorite reseller for SafeDeposit at our introductory price of just \$99 retail for a single user and \$229 retail per file server. Special work group bundle prices are also available. Or call (801) 269-7311 and ask for a FREE demo copy today. See for yourself how easy backup can be.



# Dayna

Macintosh Networking Specialists



**Super  
fantastic  
closeout prices!!!**

# These chassis

**Time to  
Drive a Hard  
Bargain!\***



## We're closing out our ZFP™, Cirrus™ and Silverscanner™ models!

### 40MB to 1.2MB capacities available

- La Cie is discontinuing our classic zero foot print (ZFP) and Cirrus hard drive cases in favor of newer, sleeker body styles.
- We're not fooling around—we're blowing out every ZFP and Cirrus hard drive in inventory at once-in-a-lifetime bargain prices.
- These are top quality, award winning drives. All La Cie ZFP and Cirrus hard drives deliver the latest in high-performance Quantum technology.

### All La Cie ZFP and Cirrus drives include:

- FREE Silverlining hard disk management software (\$149 value)
- 2-year Limited Warranty on parts and labor
- Unlimited TOLL-FREE technical support
- FREE switchable termination (\$50 value)
- All drives are burned-in and tested
- SCSI cables included
- Apple System installed; ready to plug and play
- Universal Power Supply
- Approved by FCC and UL.

## Seeing is believing! Award-winning closeout!

La Cie is replacing our original Silverscanner (1992 World Class Award winner) with a newer model. Now you can enjoy the rich imagery of our original Silverscanner at cheap thrills prices (perfectly balanced color to our shadowy details to our crisp clean curved lines). But don't wait! The only thing limited about our state-of-the-art Silverscanner is our inventory. Don't let this one-pass beauty pass you by this time. Call us and order one right now, before they're all gone!



**Closeout!**  
Original La Cie  
Silverscanner  
Limited Supply!

### Silverscanner

with Color It! and Read-It  
O.C.R. Pro

Was! ~~\$1399~~ Now! **\$999**

### Silverscanner

with Photoshop and  
Read-It O.C.R. Pro

Was! ~~\$1799~~ Now! **\$1349**

### Silverscanner

with Photoshop, ColorStudio and  
Read-It O.C.R. Pro

Was! ~~\$1899~~ Now! **\$1449**



# are history!!!

**Super  
fantastic  
closeout prices!!!**



**While  
Supplies  
Last!\***

**Call us now for super, fantastic, incredible closeout prices!!!**

Quantum	ZFP		Cirrus	
	Was!	Now!	Was!	Now!
40MB	<del>\$299</del>	\$239	<del>\$319</del>	\$289
85MB	<del>\$379</del>	\$269	<del>\$399</del>	\$319
120MB	<del>\$499</del>	\$409	<del>\$519</del>	\$459
127MB	<del>\$439</del>	\$339	<del>\$459</del>	\$389
170MB	<del>\$469</del>	\$369	<del>\$489</del>	\$419

Quantum	ZFP		Cirrus	
	<i>Was!</i>	<i>Now!</i>	<i>Was!</i>	<i>Now!</i>
240MB	<del>\$689</del>	\$449	<del>\$709</del>	\$499
525MB	<del>\$1249</del>	\$999	<del>\$1269</del>	\$1049
700MB	<del>\$1429</del>	\$1259	<del>\$1449</del>	\$1309
1.05GB	<del>\$1769</del>	\$1399	<del>\$1789</del>	\$1449
1.2GB	<del>\$1999</del>	\$1649	<del>\$2019</del>	\$1699

Other capacities may be available on ZFP and Cirrus closeouts. Call for details.

**These low, low, closeout prices will disappear with our inventory, so call us now for fast, friendly service! And as always, your satisfaction is guaranteed!**

# 800-999-1816



International 503-520-9000 Fax 503-520-9100 6 a.m.-6 p.m. PST Mon.-Fri. VISA, MasterCard, C.O.D. and approved purchase orders accepted\*

\*Call for details on terms, conditions, limited money back guarantee and free offers. System 7.0.1 software included only with certain configurations. ZFP+ Drives do not have switchable termination. Prices do not include shipping and only apply to products shipped within the continental United States. Please contact La Cie for international distribution. Add sales tax where applicable. ZFP, ZFP+, Cirrus, Tsunami, PocketDrive, PocketDock, ExpressDrive, Silverscanner, Silverscan, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. All prices, specifications, terms, descriptions, products and services herein are subject to change without notice or recourse. © Copyright 1992-93 La Cie, Ltd. 8700 SW Creekside Place, Beaverton, OR 97005. Phone: (503) 520-9000, Fax: (503) 520-9100. All rights reserved. Printed in U.S.A.

**BEST!**  
Macworld  
Hard Drive  
under 80 MB

**BEST!**  
Macworld  
Hard Drive  
80-200 MB

**BEST!**  
Macworld  
Hard Drive  
over 200 MB

**BEST!**  
Macworld  
Color Scanner  
SilverScanner

**FCC  
Certified!**

**TOLL-FREE!**  
Technical  
Support

**TOLL-FREE!**  
Customer  
Service

**FREE!**  
Silverlining™

**Switchable  
Termination!**

**Universal  
Power  
Supply!**

**30 Day  
Money Back  
Guarantee\***





## Graphics users turning to MO drives



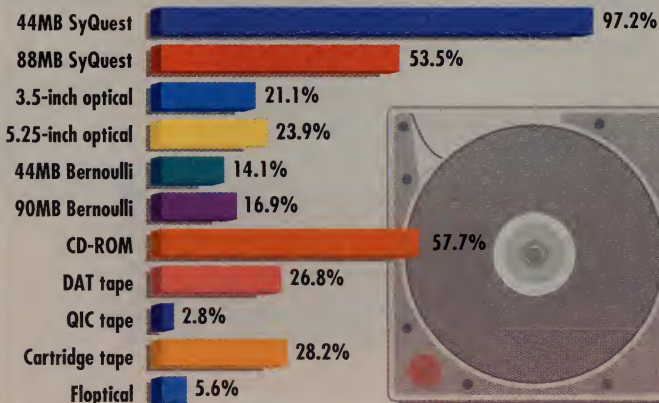
### NEWS ANALYSIS

By Kirsten L. Parkinson  
San Francisco — SyQuest vs. magneto-optical? It's a question that plagues desktop publishers and service bureaus alike, but according to industry observers, magneto-optical technology eventually will come out on top.

Removable-media drives manufactured by SyQuest Technology Inc. of Fremont, Calif., have been the de facto industry standard for several years. In a recent survey by the Association of Imaging Service Bureaus, more than 90 percent of the service bureaus polled owned a SyQuest drive; less than 25 percent owned magneto-optical devices (see chart).

Industry observers say the high price of magneto-optical drives has limited their market success. With a capacity of 128 Mbytes per cartridge, 3.5-inch magneto-optical drives currently cost about \$1,500, while 5.25-inch optical units that hold about 600 Mbytes per cartridge typically cost \$3,000. By contrast, SyQuest 44-

### Storage devices used by service bureaus



Source: Association of Imaging Service Bureaus.

Mbyte and 88-Mbyte drives average about \$500 and \$700, respectively.

"I think [magneto-optical drive prices] are going to have to drop substantially before they'll really catch up with the SyQuests," said Robert Geissberger, president of Digital Prism Inc., a service bureau in San Carlos, Calif.

Many analysts, however, predict such a price drop in the near future.

"Magneto-optical drive prices are coming down very fast," said Patty Chang, senior industry analyst for Dataquest Inc. of San Jose, Calif. "We expect drives under \$500 by the end of the year."

Once drive prices drop, observers said, 3.5-inch magneto-optical technology will have distinct advantages over SyQuest devices for the desktop publishing market, including a smaller form factor, higher capacity and a better price per megabyte. According to Dataquest, when users buy seven cartridges, the cost per megabyte for SyQuests is \$1.97, while the optical cost per megabyte is \$1.41.

"In the long run, the 128-Mbyte opticals are a better buy," said Ed Csech, system applications director for Black Dot Graphics of Crystal Lake, Ill. "If I were in users' shoes, that's what I would go with. If you're getting three times the storage and a

See Drives, Page 24

## Dycam digital camera grabs 24 bits

By Matthew Rothenberg

Chatsworth, Calif. — Dycam Inc. this month will take a shot at electronic color photography with a new 24-bit version of its digital camera.

The Dycam Model 4, which the company will announce this week at CeBIT '93 in Hanover, Germany, is

due to ship in August for \$1,995. The 10-ounce camera captures eight bits each of RGB (red, green, blue) data per pixel and has a maximum image size of 496 by 365 pixels.

The Model 4 runs on a rechargeable NiCad battery that is good for 100 hours with electronic flash or 120 hours without it. Users will be able to capture up to 16 images before downloading them to Mac, Windows or Unix machines via an RS-232 serial interface and cables. A parallel port will be optional.

The device's depth of field ranges from 3 feet to infinity; users will be able to purchase a variety of 24mm close-up, wide-angle and telephoto lenses. The Model 4 includes an independent viewfinder with guides for framing a shot.

Exposure times range from 0.0005 to 0.65 seconds, and the camera features a built-in electronic flash. Audio signals indicate that memory or battery power is low or the camera is ready for the next picture.

The Model 4 will ship with Mac, Windows and Unix software that

See Dycam, Page 24



The Dycam Model 4 can capture up to 16 24-bit-color images that users will be able to download to their CPUs.

## Torqueware lets users process Mac graphics fast on SGI Indigo

By Neil McManus

Palo Alto, Calif. — Users can get a jump on the PowerPC with new Torque Systems Inc. software that lets Macintoshes tap RISC-based servers that process graphics tasks up to 20 times faster than a Quadra 950.

Torqueware, available now for \$2,000, lets Mac users offload graphics processing to Silicon Graphics Inc.'s Indigo workstations.

In addition, Torque Systems is offering a variety of turnkey software packages, aimed at 3-D artists and pre-press professionals, that use Torqueware to access the Indigo.

► **FlashTracer.** This \$2,000 package, developed by VideoBits Co. of Pasadena, Calif., speeds 3-D rendering in Strata Inc.'s StrataVision 3d.

► **Slave Camera for SGI.** Due later this spring for about \$3,000, this software accelerates rendering in the ElectricImage Animation System from Electric Image Inc. of Pasadena, Calif.

► **RipServer.** Due in May, this package will combine Compumation Inc.'s print spooler and a software-based PostScript RIP (raster image processor) to rasterize images for output devices such as film recorders and imagesetters.

In addition, this spring Torque will release packages that use the Indigo to accelerate trapping, optical character recognition and Photoshop filter effects, the company said.

Torque is reselling Indigo workstations equipped with Ethernet and 1.2-Gbyte hard drives starting at \$9,900.

Besides the Indigo, Torqueware and compatible software also work with Integrated Device Technology Inc.'s CZAR, a \$5,995 NuBus board based on a 25-MHz MIPS R3000 RISC chip (see MacWEEK, Jan. 25).

Torqueware requires MacTCP, Apple's TCP/IP communications stack, and an Ethernet interface.

Torque Systems Inc. is at 700 High St., Palo Alto, Calif. Phone (415) 321-1200; fax (415) 321-1298. □



Bob Staehle of VIZability, an architectural design company in Walnut Creek, Calif., used Torqueware and FlashTracer to render this brick building in less than three hours. Staehle estimated the rendering would take 30 hours on a Quadra 900.

## Microtek lightens cost of 4-by-5-inch scanning

### Transparency scanner captures 2,000 dpi

By Matthew Rothenberg

Torrance, Calif. — Microtek Lab Inc. next month will release a \$7,999 slide scanner for 4-by-5-inch transparencies.

The ScanMaker 45t scans transparencies ranging from 35mm to 5 by 5 inches at a hardware resolution of 1,000 dpi, which can be increased to 2,000 dpi via software interpolation. The scanner includes CCD

(charge-coupled device) sensors that can capture 12 bits each of RGB (red, green, blue) or gray-scale data per pixel in a single pass. It features automatic gamma controls that select the best eight bits each of RGB information for the final image, Microtek said.

The ScanMaker 45t can capture an image at maximum size and resolution in as little as five minutes, 20 seconds, the company said.

The scanner will ship with an Adobe Photoshop plug-in that handles landscape or portrait mode, adjusts image resolution in 1 per-

cent increments and scales images from 1 percent to 200 percent.

It also will include a SCSI interface as well as the complete version of Photoshop 2.5, the \$895 image-editing program from Adobe Systems Inc. of Mountain View, Calif.

The new model will compete with 4-by-5-inch transparency scanners such as the \$22,995 Leafscan 45 from Leaf Systems Inc. of Southboro, Mass., which captures 16 bits per pixel at 4,800 dpi.

Microtek Lab Inc. is at 680 Knox St., Torrance, Calif. 90502. Phone (213) 321-2121; fax (213) 538-1193. □



# MATCHING PAIRS.



**PROOFPOSITIVE.  
FULL BLEED, 12 MINUTES, \$9.**



**LAMINATED PROOF.  
FULL BLEED, 24-HOUR RUSH, \$152.**

It's what you don't see that could cost you an arm and a leg.

Now you can proof your work while you're working. ProofPositive™ printers produce high-quality dye-sublimation preproofs. Starting at just \$9,999.

ProofPositive printers offer EfiColor™ color-matching technology. Adobe PostScript® Level II. Lightning-fast Adobe Photoshop™ printing. One-and two-page formats (8½" x 11" and 11" x 17")

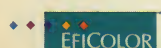
full bleed, 300 dpi. EFI Cachet™ color-editing software for the two-page model.

Everything you need for in-house proof-to-press color simulation.

For your nearest Authorized Reseller, call **800-334-3005**.

For information via fax, call SuperFacts™ 800-541-7680.

You'll see what you've been missing, right on your desktop.





# Digidesign fine-tunes Pro Tools

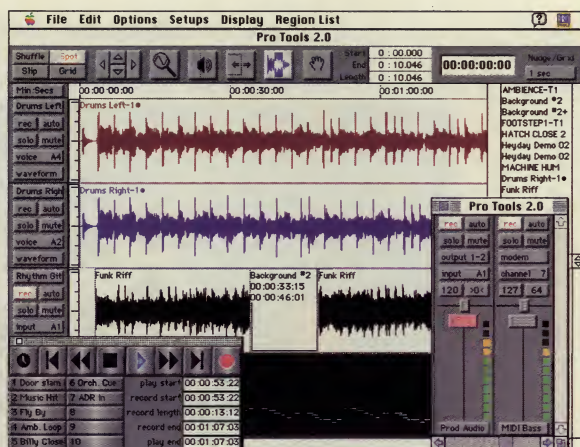
By Kirsten L. Parkinson

Menlo Park, Calif. — Digidesign Inc. is making overtures to Mac musicians with a medley of new products, including a software upgrade to its Pro Tools digital-audio workstation.

► **Pro Tools 2.0.** The company this month will release a redesign of its Pro Tools software that includes all the features of its Pro Deck and Pro Edit products, as well as several other new sound controls.

Due this month, Version 2.0 will let users switch from recording and mixing to editing by changing windows. Version 1.1.5 users must change applications to begin editing.

The upgrade will let users edit automation and changes in volume, panning and muting that are recorded over time by clicking and dragging on



Pro Tools 2.0 from Digidesign adds instant redraw capabilities that speed the program's performance.

a waveform. Other new features include instant waveform redraw; improved equalizers; and enhanced scrubbing, the process of moving back and forth along a track to define a sound segment more precisely.

Upgrades are \$49, or free to users who bought Pro Tools after Feb 1. Prices start at \$5,995 for a four-channel Pro Tools 2.0 system, which comes with an audio interface and a NuBus card.

► **SampleCell II.** Digidesign last week released SampleCell II, a NuBus card for playing back music and sound samples.

The new card costs \$1,995, the same price as the company's original SampleCell card, but it offers support for 32 voices instead of 16 and can accommodate up to 32 Mbytes of RAM.

SampleCell II ships with a limited version of the company's Sound Designer II sample-editing software and three CD-ROM collections of sound samples.

► **Session 8 and 8 XL.** Digidesign last month introduced two lower-priced audio workstations that lack many of the post-production features of Pro Tools. Mac versions of the Session 8 and Session 8 XL will ship by the third quarter for \$3,995 and \$5,995, respectively.

Digidesign Inc. is at 1360 Willow Road, Menlo Park, Calif. 94025. Phone (415) 688-0600 or (800) 333-2137, Ext. 902. □

## VideoLogic board adds QuickTime

By Carolyn Said

Cambridge, Mass. — VideoLogic Inc. this week will release a hardware and software upgrade that adds support for 24-bit-color overlays and QuickTime to its full-motion video-production card.

The \$2,195 DVA-4000 bundles a 24-bit NuBus display card, a video digitizing card, Version 1.2 of VideoLogic's MIC II software and cabling.

Like the previous version, the new DVA-4000 can capture video signals from NTSC, PAL (European) and RGB (red, green, blue) sources. It can display live real-time (30-frame-per-second) color video in any size window. For \$120, users can buy extra cabling that lets them display video from two sources in two windows simultaneously.

The new hardware will let users

overlay 24-bit-color graphics; the previous version supported overlays of eight-bit-color graphics only.

The updated MIC II software features MIC QuickStep, a new application that will let users capture digitized video as QuickTime movies. MIC II 1.2 also increases the still-image capture rate fivefold and provides a plug-in module that lets users view, freeze, preview and capture video images from within Adobe Photoshop.

VideoLogic cut almost 25 percent off the original eight-bit version of DVA-4000; it is now \$1,495. Software upgrades are free to current users, and eight-bit card owners can upgrade to the 24-bit card for \$999.

VideoLogic Inc. is at 245 First St., Cambridge, Mass. 02142. Phone (617) 494-0530; fax (617) 494-0534. □

## Drives

From Page 22

drive that's twice the price, you're going to spend less on media."

"Probably 30 percent of my clients in the DTP industry are pressuring me to get an optical drive," said Jeff Silva, president of Brownie's Blueprint Company Inc. of Sacramento, Calif. "They're frustrated by the size of SyQuest, both the physical size and the storage size."

As a result, industry observers said, the installed base of optical drives will grow tremendously in the next couple of years. Dataquest estimates that 300,000 3.5-inch optical drives will ship this year. In contrast, SyQuest places its installed base at 800,000 drives, according to Dataquest.

To further complicate the issue,

SyQuest is about to release a new 3.5-inch, 105-Mbyte removable drive that it said it will position against optical devices (see Page 10).

SyQuest's advantage is its drives' performance, the company said. For example, the new SyQuest features an average seek time of 14.5 milliseconds, almost three times faster than most of its 3.5-inch optical competitors.

But many users said price, not performance, is the determining factor.

"I don't think performance issues are going to be a problem," Digital Prism's Geissberger said. "People are going to look at the cost of [optical] cartridges, and whether it's 10 percent slower or 20 percent slower is not going to be a problem. SyQuest is going to have to counter that." □

## Dycam

From Page 22

provides thumbnail previews of downloaded images and saves them in TIFF, Encapsulated PostScript, PCX, Targa, BMP and JPEG (Joint Photographic Experts Group)-compressed PICT formats.

It will come with a 120-volt AC battery recharger; a 12-volt DC automobile adapter will be optional.

Dycam also manufactures the \$1,095 Dycam Model 3, a monochrome model that Logitech Inc. of Fremont, Calif., sells under the name FotoMan (see MacWEEK, Sept. 14, 1992).

Dycam Inc. is at 9588 Topanga Canyon Blvd., Chatsworth, Calif. 91311. Phone (818) 998-8008; fax (818) 998-7951. □



GA

BRIEFS

### New Digital Zone CD-ROMs feature Photo CD images

Bellevue, Wash. — Looking for the perfect photo for your brochure or presentation? Digital Zone Inc. recently released four CD-ROMs of Kodak Photo CD images that just might fit the bill.

Each \$599 CD-ROM focuses

on the work of one photographer and contains 50 royalty-free photos in 24-bit color. Every image comes in a variety of resolutions ranging from 128 by 192 pixels to 2,048 by 3,072 pixels.

The discs feature images of exotic locales such as Thailand and Hawaii; industrial settings; people in action; and background textures, including yarn and wood.

The CD-ROMs require a Mac LC or higher, a Photo CD-compatible drive and Eastman Kodak Co.'s Photo CD Access software.

Digital Zone Inc. is at P.O. Box 5562, Bellevue, Wash. 98006. Phone (206) 623-3456 or (800) 538-3113; fax (206) 454-3922.



Each Digital Zone CD-ROM contains 50 images, such as this Kevin Morris photo.

### Users can now Fetch 10-user package

Seattle — Image-database users can now purchase a 10-user package of Aldus Corp.'s Fetch database for cataloging, browsing, and retrieving images and sounds.

The package is \$1,995, nearly one-third off the price of 10 individual packages of Fetch, which cost \$295 each.

The software comes with two sets of documentation and a license to copy Fetch. Through April 30, registered owners of Multi-Ad Services Inc.'s Multi-Ad Search can get a \$99 trade-in by mailing in the title page from their documentation.

Aldus Corp. is at 411 First Ave. S., Seattle, Wash. 98104-2871. Phone (206) 628-2320.

### Wacom bundles Kai's Power Tools with tablets

Vancouver, Wash. — Wacom Technologies Corp. this month began shipping HSC Software's Kai's Power Tools with Wacom's SD line of digitizing tablets.

Kai's Power Tools, which retails for \$149, comprises 33 plug-in filters for Adobe Photoshop.

Wacom's SD tablets use pressure-sensitive pens. They range from 6 by 9 inches to 18 by 25 inches and cost between \$695 and \$3,995.

Wacom Technologies Corp. is at 501 S.E. Columbia Shores Blvd., Vancouver, Wash. 98661. Phone (206) 750-8882; fax (206) 750-8924.



If the stories you've heard about Thunder/24™ led you to believe it's the fastest color graphics card, the results of a new, independent lab test will leave you thunderstruck.

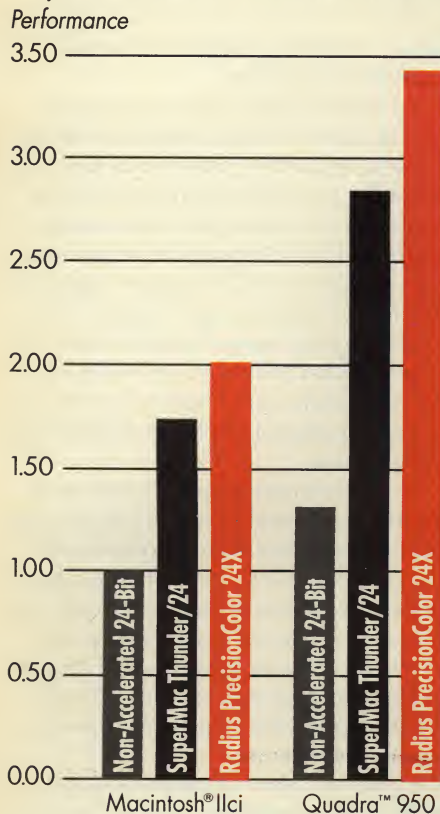
In a Hydra QuickDraw™ performance test, Ingram Laboratories found PrecisionColor 24X™ was up to 16% faster.

That's surprising, especially since the makers of Thunder/24 want you to pay \$1,250 more for their card.

PrecisionColor 24X isn't just faster and less expensive. It's also available in 7" and 9" versions. So it will fit in all of Apple's newly-announced systems, as well as current models.

No wonder MacUser rated PrecisionColor 24X "Best Price/Performance." And both MacWorld and Byte named it their "Readers' Choice."

Hydra QuickDraw Performance Test

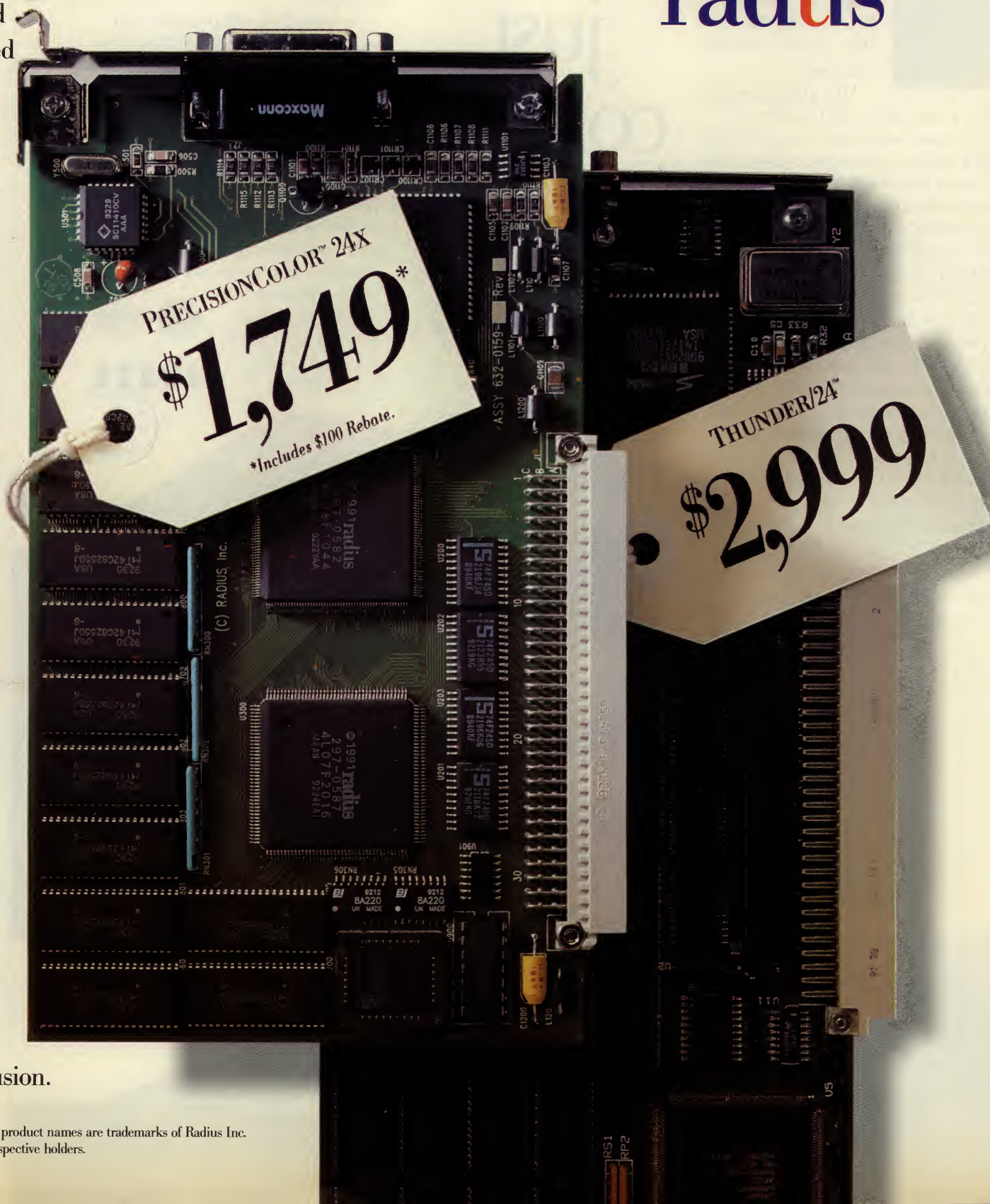


Call us at 1-800-227-2795 Ext. 2A for your \$100 rebate certificate, copies of the benchmarks and the name of your nearest Radius reseller. Or call 1-800-966-7360 to receive faxed information about our products.

Get PrecisionColor 24X. And come to the fastest conclusion.

# This Should Take All The Thunder Out Of Their Story.

PRECISIONCOLOR 24X  
**radius**™





New Media STEVE ROSENTHAL

# Analog color no easy matter

While laundry can easily be "whiter than white" on broadcast television, you can't get an apple to be redder than red. That's why paying attention to the color peculiarities of NTSC-style video can be crucial if you need

an accurate transfer of multimedia graphics from Macintosh to television-style video.

Specifying a color normally is fairly simple on the Mac. Using the RGB (red, green, blue) primary-color model favored by the Color

Picker and other system software, a color is made up of the sum of three primary color values. Equal values of the three give you a tone on the black-to-white axis, while varying the proportions of red, green and blue gives you the full range of displayable hues.

With the right software, you also can work in other color models. Or you can add calibration layers that attempt to match colors on the screen with colors you can print or send out for reproduction. But even with such

software, the underlying Macintosh hardware works in the RGB system.

Unfortunately, TV-style color isn't nearly as straightforward.

In the color system proposed by the National Television System Committee and now codified as Electronic Industries Association-recommended standard RS-170A, it takes 59 units of green mixed with 30 units of red and 11 units of blue to make colors on the black-white axis. The imbalance gives RS-170A color more room for subtle differences in the green and yellow regions where the human eye is most sensitive. But it also means you don't get a color halfway

Cursor control. After all, that's what a pointing device really is all about. And now, with the introduction of Turbo Mouse® 4.0, cursor control takes on a whole new meaning.

Macworld said, "Turbo Mouse 4.0 represents a real breakthrough in trackball software design. If you're shopping for a trackball, Turbo Mouse deserves first consideration."

Why a breakthrough?

Why is Turbo Mouse rated number 1?

The answer lies in a new and total integration of hardware and software. Take a look:

Custom Acceleration lets you change cursor speed according to the way you move the trackball. The faster the movement, the faster the acceleration. You can even have negative acceleration for detailed and precise work.

Want a really slow cursor? Activate the Slow Cursor command and you can temporarily move your cursor one pixel at a time.

Want a really fast cursor? Our new Brilliant Cursor™ technology will jump your cursor from one programmed HotSpot to

KENSINGTON

## Don't just control your cursor.

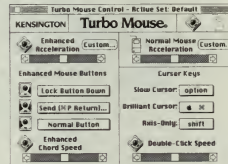


another. A real plus for large screen and multiple monitor setups.

And Turbo Mouse 4.0 features Enhanced Mouse Buttons that let you execute one of seven useful commands. You can even have the same button perform different commands in different applications.

Combine all this with onscreen help, System 7 compatibility, two ADB ports for chaining — not to mention a large comfortable ball with an ultra-responsive feel — and you'll understand why Turbo Mouse has won more awards than any other Macintosh input device in history.

For more information, call 800-535-4242. For information by fax, press 82 and request document 320. Outside the US and Canada, call 415-572-2700.



## Dominate it.

Paying attention to the color peculiarities of NTSC-style video can be crucial if you need an accurate transfer of media graphics from Mac to television-style video.

between red and green by mixing equal amounts of each color.

Furthermore, some Mac color values just can't be translated. Black-and-white video signals were defined first, and when the time came to shoehorn the color component in the total bandwidth for a video signal, little room was left. In the RS-170A system the three primary-color axes are encoded into only two signal axes, then further limited by total brightness. The resulting "color envelope" includes most of the everyday colors from the natural world, but it does not include a pure bright red, a deep cyan or the more ethereal purples you see at the edge of the rainbow.

Most recent color graphics programs on the Mac now provide you with optional color palettes that reflect these video limitations. For those that don't, you can make a rough first approximation by toning down any color with a red or blue component greater than 75 percent of the maximum level. If you plan to distribute your work on video, it's well worth investing in a program that provides such a video color set.

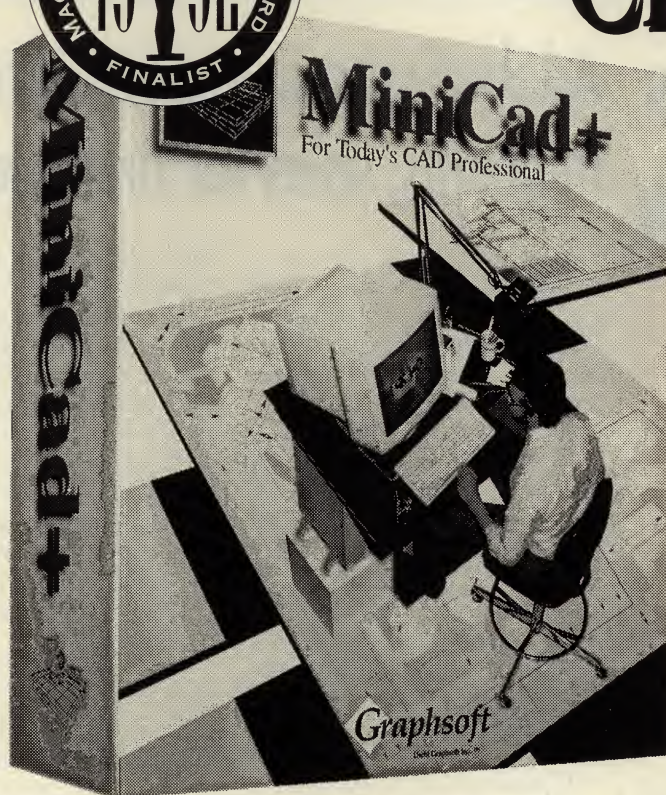
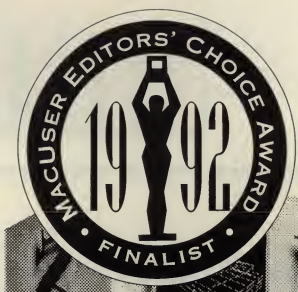
By the way, whiter-than-white doesn't really show up on television either. You get whiter-than-white clothes by adding fluorescent materials to detergents to take in invisible ultraviolet light and reflect it back as visible white light. You get whiter-than-white on television by slightly graying out everything but the laundry.

Finally, my apologies for a missed decimal point in my last column. The difference between the RS-170A rate of 29.97 frames per second and the nominal value of 30 fps is 0.1 percent rather than 1 percent. But the overall point remains — as with color differences, even these small discrepancies must be taken into account when programs are transferred over from Mac to standard video. □

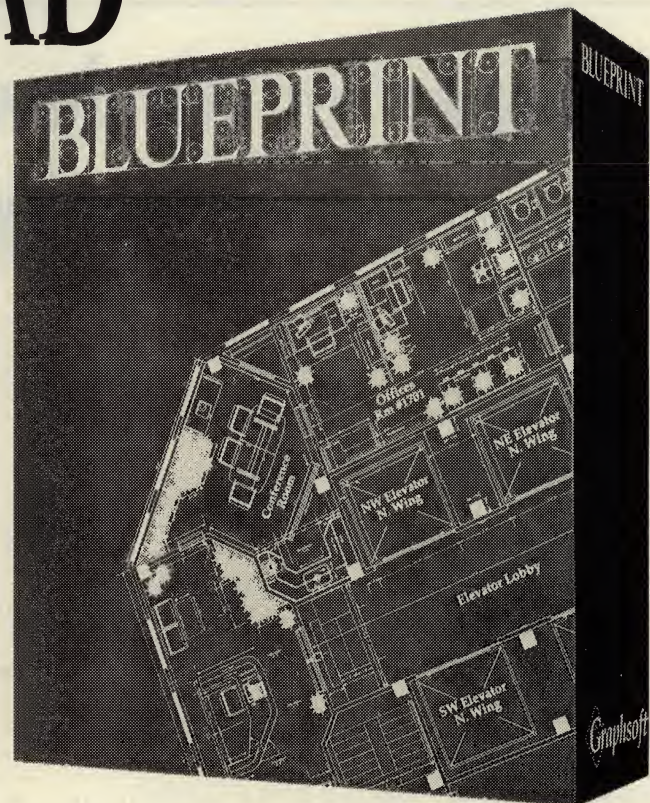
Send tips and comments to Steve Rosenthal, c/o MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105; AppleLink: Steve.R; MCI: 114-8611.



# Graphsoft Outruns Clariscad



For  
Quality, Power  
and  
Price/Performance  
MiniCad+  
and  
Blueprint  
Race  
Ahead!



## 2D CAD:

- ☐ smart walls
- ☐ Smart Cursor for locating snaps
- ☐ advanced auto-dimensioning
- ☐ editable line styles
- ☐ pan by scroll bars or hand
- ☐ color by object or layer
- ☐ DXF translator - free
- ☐ unlimited layers
- ☐ global symbol editing
- ☐ on-line prompts
- ☐ unlimited drawing space
- ☐ pick-up and put-down attributes
- ☐ selection by properties
- ☐ auto-insert symbols in walls
- ☐ hierarchical symbol library
- ☐ add & subtract surfaces
- ☐ fractional feet and inches option

- ☐ fillets
- ☐ editable fills
- ☐ beziers
- ☐ wall-join
- ☐ chamfers
- ☐ tolerancing
- ☐ unlimited saved views
- ☐ hatching
- ☐ polylines
- ☐ classes
- ☐ export EPSF
- ☐ free Claris CAD translator
- ☐ round wall caps
- ☐ edit inside groups
- ☐ scale by layer

## 3D CAD:

- ☐ mechanical projections
- ☐ orthogonal or perspective views
- ☐ work in wire-frame or solid
- ☐ walkthrough and flyover tool
- ☐ create 3D view from floorplan
- ☐ sweeps, extrusions & meshes

- ☐ 3D reshape tool
- ☐ roof & slab tools
- ☐ 3D smart cursor
- ☐ auto sectioning
- ☐ multiple view

## Integrated Database/Spreadsheet:

- ☐ attach data to graphic objects
- ☐ export reports to text, merge, dif, & sylk
- ☐ familiar spreadsheet interface
- ☐ search or select by field value

- ☐ create default records
- ☐ auto update reports

## Programmability:

- ☐ Over 300 powerful routines
- ☐ generate drawings automatically
- ☐ perform engineering analysis

- ☐ no compilation needed
- ☐ read & write text files
- ☐ automate repetitive tasks

## MiniCad+4 \$ 795.00

## 2D CAD:

- ☐ smart walls
- ☐ Graphic Guide for locating snaps
- ☐ advanced auto-dimensioning
- ☐ editable line styles
- ☐ pan by scroll bars
- ☐ color by object only
- ☐ DXF translator - extra charge
- ☐ unlimited layers

- ☐ fillets
- ☐ editable fills
- ☐ beziers
- ☐ wall-join
- ☐ chamfers
- ☐ tolerancing
- ☐ 9 saved views
- ☐ hatching

## 3D CAD:

none

## Integrated Database/Spreadsheet:

none

## Programmability:

none

## Clariscad \$ 899.00

## 2D CAD:

- ☐ smart walls
- ☐ Smart Cursor for locating snaps
- ☐ advanced auto-dimensioning
- ☐ editable line styles
- ☐ pan by scroll bars or hand
- ☐ color by object or layer
- ☐ DXF translator - free
- ☐ unlimited layers
- ☐ global symbol editing
- ☐ polylines
- ☐ unlimited drawing space
- ☐ file compatible with MiniCad+
- ☐ fractional feet & inches option
- ☐ auto-insert symbols in walls
- ☐ hierarchical symbol library
- ☐ add & subtract surfaces
- ☐ pick-up and put-down attributes

- ☐ fillets
- ☐ editable fills
- ☐ beziers
- ☐ wall-join
- ☐ chamfers
- ☐ tolerancing
- ☐ unlimited saved views
- ☐ hatching
- ☐ on-line prompts
- ☐ export EPSF
- ☐ scale by layer
- ☐ classes
- ☐ round wall caps
- ☐ edit inside groups

## Blueprint 4 \$ 295.00

Graphsoft wins races by aggressive product improvement year after year. MiniCad+ was the first CAD program on the Macintosh. Since then, our R&D department has never stopped working on MiniCad+ and Blueprint. Graphsoft customers can rely on getting significant upgrades at a reasonable cost which support current technology, new operating systems, and evolving user needs. We've won awards worldwide, and are the top selling Macintosh CAD program in quality-conscious Japan. Our technical support is staffed by professionals who know drafting and design, not just computers. We stand behind our line of products with a 30-day money-back guarantee. Send for a video and trial diskette for MiniCad+ or a tutorial and trial diskette for Blueprint, \$19 each. MiniCad+ and Blueprint, the answers you've been looking for.



1988 MacWorld  
Award  
-Australian-  
MiniCad+



1989 MacWorld  
World Class Award  
-US-  
MiniCad+



1990 MacUser  
Eddy Award  
-US-  
MiniCad+



1992 MacWorld  
Editors Choice Award  
-US-  
Blueprint



1992 MacWorld  
Best CAD Award  
-Switzerland-  
MiniCad+



Also from Graphsoft Inc.

## Azimuth

The ultimate map creation tool including 9 cartographic projections. Used by U.S. News & World Report.  
\$395.00



8370 Court Ave. Ellicott City Md. 21043 410-461-9488 fax 410-461-9345

© 1992 Diehl Graphsoft Inc. All rights reserved. MiniCad+, Blueprint, Azimuth, ContoursPro and Smart Cursor are trademarks of Diehl Graphsoft Inc. Claris CAD and Graphic Guide is a trademark of Claris Corp. All other brand and product names are trademarks of their respective holders.

# Graphsoft

The Macintosh CAD People

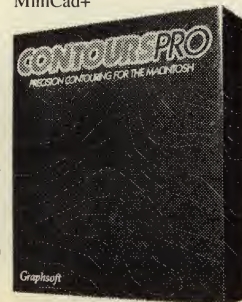
Diehl Graphsoft Inc.

Also from Graphsoft Inc.

## ContoursPro

Make high-precision survey maps with accuracy and ease. Exports DXF to AutoCAD™ or modeller of choice.  
"Recommended" says Cadalyst!

\$495.00







## Claris hopes for Windows success

*But narrows product line in the process*

By Lisa Picarille

Santa Clara, Calif. — Claris Corp.'s multiplatform commitment is forcing the company to narrow its product-line focus while attempting to broaden its user appeal.

The company said it will concentrate on database, graphics and integrated software as part of a three-pronged strategy to strengthen its success on the Mac while gaining a foothold in the Windows market.

Under the plan, Claris over the next six months will stop selling Hollywood, a Windows presentation-graphics program it purchased from IBM Corp. in 1991.

Although Claris will continue to support Claris Hollywood users for one year after discontinuing the program, all marketing, distribution and development rights will be transferred back to the original developer, Publishing Solutions Inc. of Boston, according to Claris.

Claris has also stopped future development of Resolve, its Mac spreadsheet, sources said.

Claris declined to comment.

Two-thirds of the company's strategy is already in place. File-

### Claris does Windows

PRODUCT CATEGORY	MAC	WINDOWS
Flat-file database	FileMaker Pro 2.0	FileMaker Pro 2.0
Word processing	MacWrite Pro	None
Spreadsheet	Resolve 1.1	None
Project management	MacProject Pro	None
Integrated	ClarisWorks 2.0	ClarisWorks (April)
Presentation graphics	None	Hollywood
Drawing	MacDraw Pro 1.5	None
Painting	MacPaint 2.0	None
CAD	Claris CAD 2.0	None

Maker Pro 2.0 is available on both the Mac and Windows. The Windows release, which uses the same engine as the Mac version, has been well-received as Claris' first home-spun Windows development, but it reportedly is not keeping up with its best-selling Mac counterpart, according to industry observers.

In addition, Claris this month released an upgrade to ClarisWorks, the best-selling Mac integrated package. The Windows version of ClarisWorks 1.0 is slated to ship next month.

The final piece of Claris' strategy

is a graphics engine the company has been working on for more than two years. That engine will provide the foundation for a new Mac release of MacDraw Pro as well as a Windows version, due out in the second half of this year.

The vector-based engine, sources said, will support a variety of features not available in the current MacDraw, including new illustration and presentation capabilities. It is also designed to automate many graphics tasks, a feature the company hopes will make its products more appealing to general business users.

Because the engine is written in portable code, it will also help Claris move its graphics applications to RISC-based machines, starting with the PowerPC Macs due next year, sources said. □

## CFP-3: Technology vs. privacy?

By Jeff Ubois

Burlingame, Calif. — The computer community's ongoing debate over information access vs. personal privacy took center stage here this month in a dialogue that could shape the Information Age.

The Third Conference on Computers, Freedom and Privacy (CFP-3) provided neutral ground where hackers, cops and computer professionals exchanged radically different views on the social impacts of computing and communications technologies.

"These issues are never going to be solved," said Cliff Stoll, author of "The Cuckoo's Egg," which chronicles his tracking of German hackers through the Internet. "We'll always have this tug of war between anonymity and openness, this tension between community and isolation, between sharing and secrecy." The most intense debates were

between the law-enforcement community, which fears it will lose its ability to conduct various forms of electronic monitoring, and an alliance between civil libertarians, who think a surveillance society has grown up on telecommunications and computer technologies, and the computer industry, which sees a major market in providing secure communications.

"We have a culture gap between the law-enforcement and computer communities, and unless and until we narrow that gap, we are going to have a religious war," said Lance Hoffman, a professor at George Washington University in Washington, D.C.

The FBI defended its digital telephony proposal, which would require communications equipment makers and service providers to ensure their

See CFP-3, Page 30

## U.S. cuts tariff on Korean DRAM

By Bruce Wright

Washington — The U.S. Commerce Department last week drastically reduced anti-dumping tariffs against Samsung Electronics Co. Ltd. and other South Korean memory makers.

In a preliminary ruling last October, the department had imposed levies ranging from 6 percent for Hyundai Electronics Co. Ltd. to a staggering 87 percent for Samsung. The Korean manufacturers were ordered to post a bond equal to the tariffs pending a final ruling.

See DRAM, Page 30

## Adobe Systems reports increase in profits, sales for first quarter

By Jon Swartz

Mountain View, Calif. — Bolstered by continuing demand for its PostScript technology, Adobe Systems Inc. reported solid financial results last week.

The software company, based here, posted a 10 percent increase in revenues to \$68.5 million. Net income for its first quarter ended Feb. 26 rose 16 percent to \$15.5 million, or 67 cents per share.

PostScript licensing fees once again paced Adobe's results, increasing 13 percent from the same quarter a year ago and accounting for nearly 60 percent of total sales.

Application sales, by comparison, inched up 5 percent to \$27.9 million. Adobe Photoshop and Illustrator were the company's big sellers, a spokeswoman said.

Strong U.S. sales offset an eco-

nomic slowdown in Japan to lead the surge, she said.

"We continued to see indications of strength in the [licensing] business in the first quarter," Adobe CEO John Warnock said in a prepared statement.

He said several cost-control measures over the past several months — including a hiring freeze as well as the streamlining of the company's sales and marketing divisions — contributed to Adobe's earnings success.

The combination of improved sales and belt tightening resulted in gross margins of 84 percent, up from 82 percent in the same quarter last year, according to the spokeswoman.

"It was a surprisingly good quarter for operating and gross margins," said Bruce Nakao, Adobe chief financial officer. □

### StockWatch

03.17.93 CLOSE WEEKLY % CHANGE

Apple 55.13 -2.86

SOFTWARE DEVELOPERS

Adobe 43.75 -4.37

Aldus 18.88 1.34

Caere 14.75 -19.18

CE Software 3.38 -10.00

Microsoft 85.38 0.44

Novell 33.25 6.40

Symantec 12.00 0.00

PERIPHERALS VENDORS

CMS 2.38 5.56

HP 75.88 -3.04

Mass Micro 0.50 0.00

QMS 14.75 -0.84

Radius 4.75 -7.32

RasterOps 7.25 -7.94

Sigma 5.88 -4.08

SuperMac 15.75 -1.56

STORAGE

Conner 16.88 -6.90

Maxtor 8.75 20.69

Quantum 13.38 -12.30

Seagate 16.00 -7.25

SyQuest 11.50 -7.07

INDUSTRY INDICATORS

DEC 45.88 0.00

IBM 54.38 -2.68

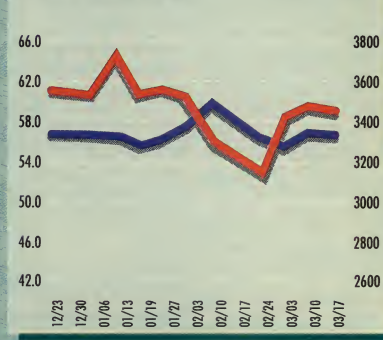
Motorola 64.00 1.19

Sun 30.88 -11.47

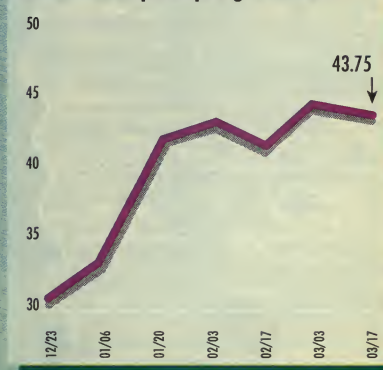
Dow Jones 3427.01 -1.48

Compiled by Nordby International Inc.

Apple stock price..... 55.13 on 03/17/93  
Dow Jones average..... 3427.01 on 03/17/93



Adobe stock dips despite good results



Adobe Systems Inc. may have reported an increase in sales and profits for its recently completed quarter, but apparently the results weren't good enough for Wall Street investors.

The Mountain View, Calif.-based software developer's stock fell \$2.50 last Wednesday after the results were announced. It closed the week at \$43.75, a decline of 4.4 percent compared with the previous week.



# LESS NOISE LESS HASSLE LESS MONEY!



## *DataPort™ 14.4/Fax Modem with optical technology*

**MORE SPEED:** Only AT&T's exclusive Optical Line Interface (OLI), pat. pending, eliminates the noise that other high-speed fax modems add to the data stream. Less noise means you get the highest speeds possible on good or bad phone lines!

- V.32bis (14,400 bps data, 9,600 bps fax)
- V.42bis/MNP 5 (data compression, error correction)
- Effective throughput up to 57,600 bps!

**MORE COMPATIBILITY:** OLI delivers hassle-free compatibility for more consistent connectivity than other high-speed fax modems.

**MORE VALUE:** You get everything you want in the DataPort 14.4/Fax Modem, backed by AT&T with:

- AT&T's lifetime warranty for as long as you own it, plus
- Toll-free technical support.

**Solidly-built, solidly-backed by AT&T.**

# \$299

Reg. price, \$585.

For the Mac. Also available, PC version for DOS and Windows.

**Comes complete with** QuickLink II comm/fax software, CompuServe bonus (\$22.95 value), user's manual, Mac cable, fax modem phone cord.

Visit these dealers! Or for the name of the dealer nearest you, or to order, call: 1 800 554-4996 ext 3513.



## Offer ends April 30, 1993. Visit the dealer nearest you, today!

Prices under \$300 vary by dealer, while supplies last. Hurry!





# Apple loses two execs from PB division

By Andrew Gore

Cupertino, Calif. — Apple last week lost two key PowerBook executives. But while one went to head an Apple partner, the other is taking a key role at a competitor.

► **Neil Selvin**, former director of marketing for Apple's portable computing group, now is president of Global Village Communication Inc. in Mountain View, Calif.

The company claims to have the

largest installed base of Mac modems. Selvin said he will help it move from a business model dominated by hardware sales to a more software-oriented model. He added that his background also would help enhance the company's already strong ties with Apple.

► **John Medica**, previously Apple senior director for portable computing engineering, last week accepted the position of vice presi-

dent of portable products for Dell Computer Corp. in Austin, Texas.

Dell currently offers about eight notebooks, but its record in the portable market hasn't matched its success in the desktop PC clone world. Dell said it plans to introduce 18 new portables by year-end.

An Apple spokeswoman said the timing of the departures was "coincidence" and didn't reflect problems in the portable group. □

## DRAM

From Page 28

But last week, after completing its investigation, the department slashed the heaviest tariffs, cutting the levy on Samsung memory to less than 1 percent and a proposed 52.41 percent penalty on Goldstar Electron Co. to 4.97 percent.

The case stems from charges brought last year by Micron Technology Inc. that South Korean chip makers were illegally selling 1- and 4-Mbit RAM chips to U.S. buyers at less than the cost of production (see MacWEEK, Oct. 26, 1992). Boise, Idaho-based Micron is one of two domestic dynamic RAM suppliers.

Parties affected by the case were divided in their response.

"It doesn't appear the government holds the best interests of the semiconductor industry," said Mike Frost, president of RAM distributor Technology Works Inc. of Austin, Texas.

But Keith McDonald, Samsung vice president of sales and marketing, said in a press conference last week that the chip maker was "surprised and disappointed" by the Commerce Department's findings. "We do not believe that the ruling accurately reflects DRAM

sales in the United States," he said.

The preliminary levy caused a brief panic on spot markets last fall. But Samsung covered the bond itself, without raising prices, and McDonald said there was no drop in the supply of 1- and 4-Mbit RAM chips.

Frost contended that supply had indeed decreased for small manufacturers in the past five months but said larger companies that buy memory under long-term contracts were not affected. He estimated chip prices had jumped about 20 percent since October.

However, Sherry Garber, vice president of product services at In-Stat Inc., a research company in Scottsdale, Ariz., said she

hadn't seen an appreciable rise in DRAM prices. Nonetheless, she expressed relief over the government's verdict.

An Apple spokeswoman said the company had not been affected significantly by tariffs on South Korean chips. "Apple sources products globally, so we were prepared to deal with these issues," she said.

The South Korean government had offered a compromise plan that included commitments to widening U.S. manufacturers' access to the Korean market. Apple reportedly was among companies pressing Commerce Department Secretary Ron Brown to accept the Korean plan. □

## CFP-3

From Page 28

equipment could be tapped. "Electronic surveillance provides evidence, and it prevents crimes," said the FBI's Alan McDonald.

But sentiment against the idea was high. David Sobel, legal counsel for Computer Professionals for Social Responsibility in Washington, noted the FBI's reasons for the proposal were secret and criticized it as "drastic" and unjustified. "It's like

saying we should ban gloves because they deprive the FBI of an important investigative technique (fingerprints)," he said.

Last week a federal judge took the civil libertarians' side, ordering the Secret Service to pay \$50,000 to a Texas game publisher whose bulletin board system was seized in a 1990 raid. The judge ruled the government had violated both the federal Electronic Communications Privacy Act and the Privacy Protection Act.

Another major conference topic was computerized medical records, which offer physicians the ability to provide more accurate and responsive care but pose dangers to personal privacy. With health-care reform proposals floating around Washington and up to 20 percent of health-care costs related to information handling, the issue is certain to become more relevant.

Other issues addressed at the conference included electronic democracy, Bell company information services, censorship on computer networks, intellectual-property laws, toll fraud, workplace privacy, accessing government information, the economics of privacy, use of the Internet by the CIA (with input from a CIA analyst), and the latest on interactions between the hacker and law-enforcement communities.

The next CFP conference will be held in March 1994 in Chicago. □



## Business

### BRIEFS

#### NeXT president, chief operating officer resigns

Redwood City, Calif. — Peter van Cuylenberg has resigned as president and chief operating officer of NeXT Computer Inc. after only one year with the company.

The departure, coupled with the recent resignations of Chief Financial Officer Marcel Gani and other key executives, casts more doubt on the company's viability after it dropped its hardware business to focus on software and laid off 330 of its 530 employees last month (see MacWEEK, Feb. 15).

Neither van Cuylenberg nor NeXT co-founder Steve Jobs was available for comment last week.

#### Intuit raises \$47.6 million in initial public offering

Menlo Park, Calif. — Intuit Inc. raised \$47.6 million in a March 12 initial public offering.

The financial software company's shares opened at \$20 before rising to \$31.75 in the first day of trading. Intuit sold 1.5 million shares of common stock.

According to Intuit, based here, the proceeds will be used for working capital and general corporate purposes. Morgan Stanley & Co. Inc. of New York and Robertson, Stephens & Co. L.P. of San Francisco are managing the deal.

#### Virtus gets a little help from Motorola

Cary, N.C. — Virtus Corp., developer of 3-D visualization software for the Mac and Windows, is getting an infusion of capital from one of the giants of the semiconductor and communications industries.

Motorola Inc. has made an equity investment in the privately held company, Virtus announced last week. The amount of the investment was not disclosed. Two executives of Motorola's New Enterprises group will join the Virtus board, which already includes author Tom Clancy, among others.

A Windows version of Virtus' flagship product, Virtus Walk-Through, is slated for release next month.

#### Mass Micro sales up, but company still posts loss

Sunnyvale, Calif. — Mass Microsystems Inc. last week reported an increase in annual sales, but profits slid for a second straight year.

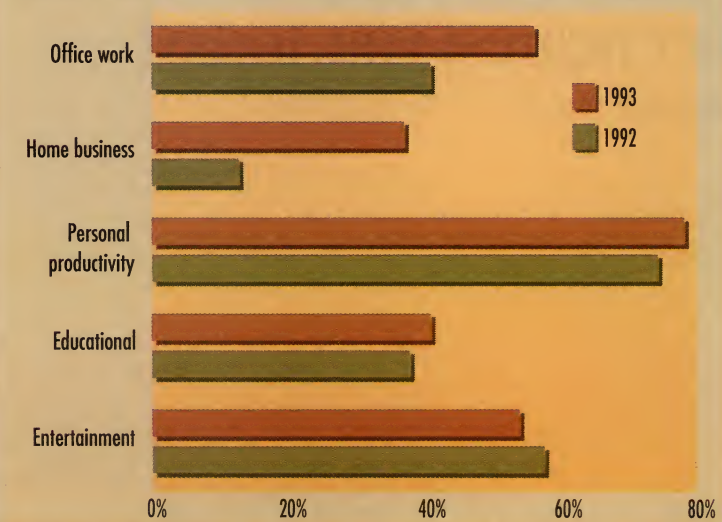
The peripherals maker said sales for its fiscal 1992 year ended Dec. 31, 1992, were \$23.2 million, compared with \$21.3 million in 1991. Mass Micro lost \$2.8 million, compared with a loss of \$4.5 million last year, chiefly because of restructuring costs and the closure of its HyperPro Inc. subsidiary.

Company President Carl Pompei said Mass Micro's pending merger with Ramtek Corp. should boost storage sales (see MacWEEK, Jan. 4).

## MacWEEK index

### USE OF HOME PERSONAL COMPUTERS

U.S. personal computer users will spend more time working and less time playing at home in 1993 than they did last year, according to a recent survey.



Source: Software Publishers Association.



# Give your network a future.



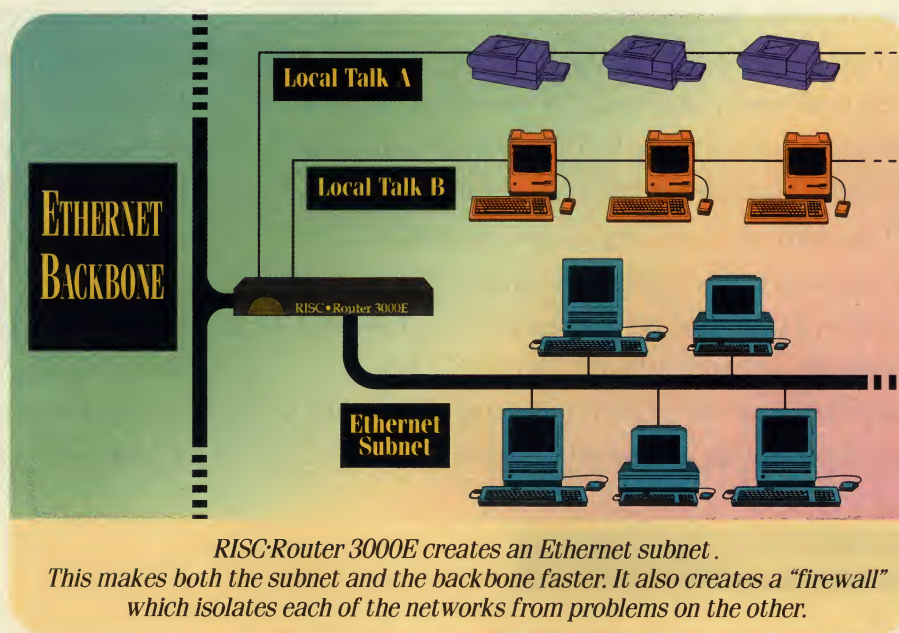
*RISC Router 3000E Ethernet-to-Ethernet Router, with 2 LocalTalks, \$2995.*

**Q:** Why does my network need Ethernet-to-Ethernet routing?

**A:** Performance and reliability. By using a RISC Router 3000E to link an Ethernet subnet to a central backbone network, you can reduce network traffic on both sides of the router.

**Q:** How does RISC Router 3000E give my network a future?

**A:** It gives you an upgrade path. RISC Router 3000E includes two LocalTalk ports, and can be installed for about the same cost as an Ethernet-to-LocalTalk router like the GatorBox or FastPath. As your Macintoshes on LocalTalk require additional network speed, you can simply upgrade them to Ethernet and connect them to RISC Router 3000E's Ethernet subnet.



*Route between two Ethernets and two LocalTalks for about the same cost as a GatorBox or a FastPath.*

**Q:** Does the RISC Router 3000E support the standard set of features I've been using on my Ethernet-to-LocalTalk routers?

**A:** Absolutely. And more! It supports AppleTalk Phase I and Phase II, TCP/IP and DECnet, MacTCP, atalkad, AppleTalk in IP tunneling, RIP, SNMP, and our own Advanced Network Security Protocol (ANSP™).

**Q:** What advantages does the RISC Router have over other Ethernet-to-Ethernet routers?

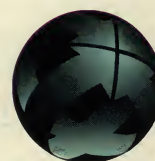
**A:** Macintosh based management tools. A Macintosh-aware feature set, with ANSP™ and Ethernet-to-Ethernet tunneling. Support for thick, thin, and 10BaseT Ethernet on each Ethernet port. Dazzling performance, and a very aggressive list price.

**Q:** How can I get more information, and complete technical specifications?

**A:** Call us toll free at 800-356-0283. We'll be happy to send you complete information on RISC Router 3000E, and our other Macintosh Ethernet products.

**1-800-356-0283**  
**The future is here.**  
**Call now.**

All trademarks mentioned are the property of their respective holders.



**Compatible Systems**  
*Connecting You With The Enterprise<sup>SM</sup>*

*Resellers: — available through Ingram Micro and Tech Data.*



## MacWEEK

**Publisher** David J. Ezequiel  
**Editor** Henry Norr

## EDITORIAL

**Executive Editor/Reviews** Rick LePage  
**Executive Editor/Features** Anita Malmig  
**Managing Editor** Brenda Benner

**Senior News Editors** Andrew Gore, Carolyn Said  
**Senior Editor** Erik Holsinger (ProductWatch)  
**Technical Editor** Stephen Howard  
**Editors at Large** Dale Coleman, Mitch Ratcliffe  
**Associate News Editors** Neil McManus (GA), Leonard Heymann (Gateways), Jon Swartz (BusinessWatch)

**Senior Writers** Lisa Picarille, Matthew Rothenberg  
**Technical Analyst** Raines Cohen  
**Associate Editors** Kurt Carlson, Sean Wagstaff (Reviews)

**Staff Writers** Kirsten Parkinson, April Streeter, Nathalie Welch  
**Assistant Editor** Jennifer Ambrulevich  
**Assistant Managing Editor** Anne Matera  
**Senior Copy Editor** Mariann Hansen  
**Copy Editors** Allison de Laveaga, Ken Torisky, Kathy White

**Assistant to the Editor** Pamela J. McIver  
**Editorial Intern** Ian G. Jacobs  
**Contributing Editors** Clay Andres, Don Crabb, Ric Ford, Bruce Fraser, Connie Guglielmo, Steve Hannaford, Steve Michel, Jonathan Oski, David Ramsey, Steve Rosenthal

## ART AND PRODUCTION

**Managing Director/Production and Technology** Barri Klingaman  
**Art Director** Eleanor Leishman  
**Assistant Art Director** Margaret Lee  
**Infographic Specialist** Nevin Berger  
**Graphic Designer** John Farnsworth II  
**Production Manager** Steve Spingola  
**Pre-press Manager** Tim Manousos  
**Assistant Pre-press Manager** Tamara Gargus  
**Pre-press Technician** Dave Janusko  
**Ad Production Coordinator** Michele Kellogg

## ADMINISTRATION

**Business Manager** Rosemarie Carbone  
**Marketing Director** Vickie Welch  
**Marketing Coordinator** Christine Forney  
**Circulation Manager** Linda Emanuele  
**Sr. Circulation Coordinator** Me'Shel A. Riedel  
**Circulation Assistant** Lorraine O'Shea  
**Systems Administrator** Robert Hess  
**Research Associate** Sean Pfister  
**Assistant to Publisher** Grace Jue  
**Sales Assistant** Dario A. Lorenzana Jr.  
**Administrative Assistant** Heather Kudzia  
**Billing & Credit Coordinator** Elizabeth Hurst  
**Office Services Coordinator** Quentin Thompson

## ZIFF-DAVIS MAGAZINE NETWORK

**Group Vice President** J. Samuel Huey  
**Managing Director** Joseph Gillespie

## ZIFF-DAVIS PUBLISHING COMPANY

**Chairman and CEO** Eric Hippeau; **President** J. Scott Briggs; **Executive Vice President** Ronni Sonnenberg; **Executive Vice President** Mike Edelhart; **Executive Vice President, International** J.B. Holston III; **Group Vice President** J. Samuel Huey; **Group Vice President, Direct Publications** Jim Stafford; **Senior Vice President, Marketing** Paul H. Chook; **Senior Vice President** Rachel Greenfield; **Vice President & General Manager** Louis B. Dotti Jr.; **Vice President, Operations** Baird Davis; **Vice President, Controller** Howard Skolnik; **Vice President, Creative Services** Herbert Stern; **Vice President, Research** Rolf M. Wulfsberg; **Vice President, Circulation Services** James F. Ramaley; **Vice President, Marketing Services** Ann Pollak Adelman; **Vice President, Production** Roger Herrmann; **Vice President, Europe** Frank Kelez; **Vice President, Technology** William B. Machrone; **Vice President, Central Advertising Sales** Paul Stafford; **Vice President, ZD Magazine Networks** Marian O. White; **Vice President, Human Resources** Rayna Brown; **Vice President** Claude P. Sheer; **Assistant to the Chairman** Tom McGrade; **Executive Director/Information Systems** John Helliwell; **National Managing Director/Magazine Networks** Joseph Gillespie; **Licensing Director** Jean Lamensdorf; **Director of Planning** Gary A. Gustafson; **Production Director** Walter J. Terlecki; **Director of Sales Training** Dan Leonetti; **Director of Corporate Marketing** Susan Delman; **Editorial Director** Lewis D'Vorkin; **Co-Directors ZD Benchmark Operation** Bill Catchings and Mark L. Van Name; **Director, Direct Marketing Programs** Alicia Marie Ivans; **Director of Public Relations** Gregory M. Jarboe

## ZIFF COMMUNICATIONS COMPANY

**Chairman** William B. Ziff Jr.; **President** Philip B. Korsant; **Executive Vice President** Philip Sine; **Executive Vice President** Steven C. Feinman; **Vice President & Special Assistant to the Chairman** Bruce Barnes; **Vice President, General Counsel and Secretary** J. Malcolm Morris; **Vice President, Controller and Treasurer** Patrick J. Burke Jr.; **Vice President** Seth Alpert; **Vice President, Business Manager** T.L. Thompson; **Vice President, Chief Information Officer** Thor Olson; **Vice President, Electronic Editorial Director** Michael Kolowich

**Editorial and advertising offices:** 301 Howard St., 15th Floor, San Francisco, Calif. 94105. Phone (415) 243-3500; fax (415) 243-3651.  
**Subscriptions:** Customer Service Department, MacWEEK, c/o JCI, P.O. Box 1766, Riverton, N.J. 08077-7366. Phone (609) 461-2100.



## EDITORIAL

## Servers come up short in enterprise

The new server products to be announced this week by Apple's Enterprise Systems Division will be welcome news to Mac managers. But they also demonstrate how far the company has yet to go before it can claim to be a major-league player in the world of enterprise computing. The problems are easily stated:

► **Mac mostly.** The three Apple Workgroup Servers are aimed, as ESD put it, at the "Mac mostly" market, but large-scale enterprises that meet that description are few and far between. At most enterprises, Macs are a pervasive minority, except in selected workgroups. The new servers will offer those groups a welcome performance boost, but they won't do much to lower the barriers between platforms.

True, Apple announced AppleTalk Connection for DOS and Windows, a "new" AppleShare client and Chooser implementation. In fact, it's just a repackaged version of Farallon Computing Inc.'s AppleTalk-only PhoneNET Talk PC.

Beyond that and the TCP/IP support built into the Unix-based Apple Workgroup Server 95, Apple has made only pass-

ing nods to customers' insistent demands for interoperability. The products don't support Novell Inc.'s IPX (Internetwork Packet Exchange) protocols, nor Sun Microsystems Inc.'s Network File System standard. Retrospect Remote, the back-up software from Dantz Development Corp. that Apple is bundling with the Workgroup Server 95, lacks a DOS or Windows client. And there is, as yet, no non-Mac front end to AppleSearch, the company's new text-retrieval system.

► **Missing pieces.** However impressive their performance and ease of use, the new releases don't bring AppleShare up to par with enterprise-computing standards in areas such as security, fault tolerance and network management. Nor do they add capabilities now appearing in cutting-edge alternatives, such as multi-processing and SCSI-2.

We welcome Apple's decision to move into the server market and look forward to steady progress in this area. But neither the company nor its customers should have illusions about how much has been achieved so far. □

## Commentary

## Free market laws will govern success of Apple's Newton

In the process of descending from empyrean vision into the ruts of reality, Newton will face questions dealing with expectations, competition and profits.

First, Newton will be tested against expectations aroused by last year's spectacularly successful media blitz. In fact, one might observe that the original announcement had been a little too successful, at least in terms of popularizing the vision and not the realities of what can be done when.

The company has since gone through months of uneasy contortions, repositioning Newton as a business product and letting it be known that Newton's first incarnation would lack many of the features of a true personal digital assistant (PDA).

Skeptics might call the first Newton a pen-based personal information manager designed in California — read a trendy but irrelevant gadget. Supporters, on the other hand, are likely to hail Newton as the wave front of the next computing revolution.

Ultimately, normal people, a k a con-

sumers, will decide which it is. Many people, yours truly included, will buy a Newton. But whether they keep using it and what they will tell their friends is what will determine Newton's success.

**The contenders.** But even if Newton the product is as successful as Newton the concept, Apple will still need to overcome many competitors who haven't been standing still since Newton-mania started last May.

Of the market leaders, Sharp Electronics Corp. is in the best position. Today, you can buy its keyboard and pen-based organizer for less than \$500. And it has a license to Newton as well, so all bets are covered.

Casio Inc.'s plans include a device that uses a pen-based version of GeoDos, a small, fast software platform running on low-power Intel derivatives. It has the advantage of offering a known, if modestly successful, platform with already-existing applications.

For \$398, Psion Inc. will sell you what is arguably today's most serviceable PDA. Applications include the expected address book, calendar, calculator and spreadsheet. Less expected is a fairly good word processor, programming language and communications interface.

Unlike most organizers, the Psion can use my Mac as a server. From the Psion I can scroll through my Mac files, open a document from the word processor, copy address

books back and forth, and store important files on flash-memory cards.

## Easy money.

Now, the most important question: Who will reap the benefits if PDAs are a success? Who will win?

There is no easy way to sneak a Mac or DOS floppy into your PDA. Also, the prices are likely to be scaled down with the price of the main product, meaning third-party developers lose out in any case.

Furthermore, Apple made the decision to license an experienced competitor, Sharp. While the decision was applauded as a sign of a more open Apple, one wonders what stockholders think of it.

It also should be noted that, considering the cost of materials for a product such as Newton and Apple's less than \$1,000 retail goal, licensing the Newton operating system may prove the only path to profit.

Making an electronic FiloFax that is close enough to magic to navigate seas of information is eminently desirable, hence the interest. It is also an awesome challenge, hence the questions of Newton's viability.

Customers will soon decide if Newton is up to the challenge. □



JEAN-LOUIS GASSÉE



## LETTERS



## Unresponsive AESC dealers were no day at the beach

Regarding the letter "Apple exacts its own sacrifice from longtime ed dealers" (MacWEEK, March 1) I'm so glad "Name withheld by request" took his role as an Apple Education Sales Consultant (AESC) seriously and developed excellent relationships with his clients. But before he makes statements such as "Bile was tasted from coast to coast ..." about Apple's changing approach to the education market, he should look a little further than his own situation.

When I started consulting for Mac users in 1991, I dutifully referred all local educators who asked me about buying Macs to the local AESC. It didn't take long for me to see an emerging pattern. In the 18 months since then, I have heard many groans, moans and tales of woe regarding this territorial setup that forces a school to deal with the local AESC, no matter how unresponsive it is. When it takes three or four phone calls just to get a price for an LC, something is wrong. When educators have to drive 60 miles each way to get the training the AESC is supposed to provide, or even if they don't want the training and they still have to drive the 60 miles to sign off, something is wrong.

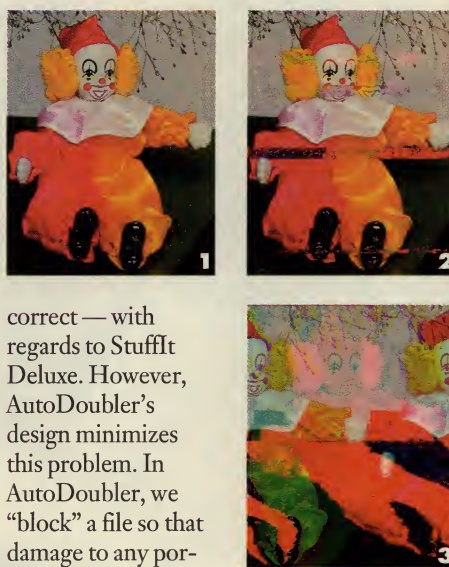
If most of Apple's academic customers were happy under the old plan, I'm sure they will continue to seek support from their former AESCs. That remains a viable option. But for those areas such as ours where AESC support has been minimal to non-existent, this new plan takes the shackles off both the educators and the consultants who are truly excited about Macintosh technology. I no longer have to walk on eggs when the academic community approaches me for the support it is due, and that is a most gratifying prospect.

Matthew Strange  
Autograph Systems  
Mansfield, Pa.

## Fault-tolerant compression has better file-recovery odds

Raymond Lau's letter "StuffIt creator disputes safety of file-compression products" (MacWEEK, Feb. 1) does a disservice to MacWEEK's readers. Clearly, Lau's concept of "modern compression schemes" includes Aladdin Systems Inc.'s StuffIt Deluxe. While these "modern" schemes suffer from the problem he described, Fifth Generation Systems Inc.'s AutoDoubler certainly does not.

Lau stated, "In any modern compression scheme, redundancy is reduced to such a point that a small amount of damage (anywhere from a single bit to a few bytes) is likely to render the remainder of the compressed file badly damaged." We assume he's



correct — with regards to StuffIt Deluxe. However, AutoDoubler's design minimizes this problem. In AutoDoubler, we "block" a file so that damage to any portion doesn't propagate throughout the file. AutoDoubler's blocks are 8 Kbytes apiece. Therefore, assuming random damage at one point within a block, only 4 Kbytes on average would be lost, not the whole file. This means a substantial portion of the file is recoverable.

The pictures above illustrate AutoDoubler's fault tolerance. Graphic 1 shows the original Adobe Photoshop file. Graphic 2 shows the file after it was compressed, deliberately damaged in four places and then recovered using AutoDoubler's recovery program. Note how AutoDoubler limited the damage to four small bands. Graphic 3 shows what happens with a conventional compressor as described by Lau.

In our Soapbox "Myths about compression need to be cleared up" (MacWEEK, Jan. 4), we also stated, "Since fewer blocks are used to store a compressed file, the chance that the file is stored over a bad block is reduced." We stand by this statement. If a random disk error occurs, it is half as likely to affect a file that is half the size.

Compressed or not, any damage, however insignificant, can make some files unusable. The difference is that with a compressed file, you can determine the file is damaged vs. just having your application crash unexpectedly.

We agree with Lau that data compression is a reliable technology. However, disks can and do crash, and fault-tolerant compression gives you a much better chance of recovering a damaged compressed file. As far as we know, AutoDoubler is the only program to offer this capability.

Lloyd Chambers, director of compression development, and Terry Morse, director of compression marketing  
Fifth Generation Systems Inc.  
Palo Alto, Calif.

Send letters to MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105. MCI 323-1203; Internet, letters@macweek.ziff.com; fax (415) 243-3650. Include your name, address and phone number. Letters should not exceed 300 words. We reserve the right to edit for clarity and length.

## The Mac Manager

## Database Mac doesn't deserve to be dismissed



DON CRABB

When you audit the Macs in your shop, what sorts of applications do you find most in use? Word processors? Spreadsheets? Maybe presentation software?

In each category, how are these packages being used? Is it mostly for basic clerical and administrative chores, or is it perhaps for higher-profile, more-analytical functions?

If you conduct this exercise as I have with some of my clients, the results likely will reveal that database is a category of software that lags both in frequency and sophistication of use. You'll probably find flat-file databases employed for some basic record keeping, while you also might have a custom relational application running that ties your department into some corner of the corporate data farm for some limited retrievals.

In both instances, the potential of database software and database solutions has barely been scratched, and that's a waste that all Mac managers need to start addressing now.

Our Mac-using charges need to become as proficient at designing database models for reporting and analysis as they have become at designing word processing documents, spreadsheet templates and presentations.

**The Mac as database hero.** The Mac is a seriously underrated database platform, which may be one reason why we don't expect more database usage from it. That perception has changed a bit over the past year with the release of industry-leading products such as Claris Corp.'s FileMaker Pro 2.0 and ACI US Inc.'s 4th Dimension 3.0.1, but the perception of the Mac's database prowess still seriously lags behind the reality.

The truth is that the Mac blows away other platforms for sheer suitability for

database applications, thanks to its mature graphical user interface, rational access methods for system resources, open and versatile architecture, and advanced connectivity options. But the perception that the Mac is a database weakling lingers because the platform never solidly embraced xBASE, the now-tarnished DOS database standard.

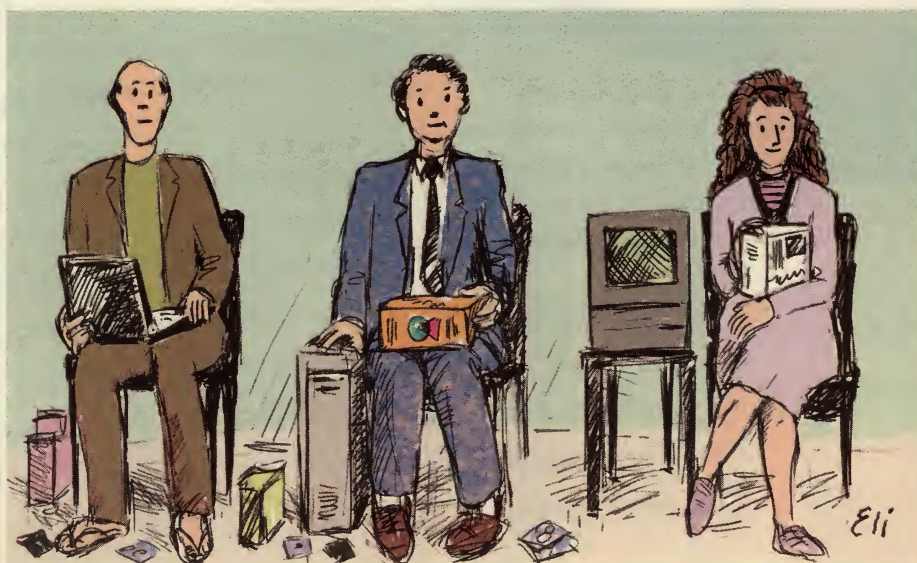
Unfortunately, Apple has focused only on the connectivity power side of the database issue. As a result, the Mac often is thought of only as a client to someone's server. This only perpetuates the nonsense about the Mac being "too cute or too graphics-oriented" to "crunch databases."

It's time for Apple to remind everyone that the Mac hardware can blow through data with the best of the Intel-based alternatives. This week's server introductions, including the Oracle-based database server, should end speculation about the Mac's relative suitability for heavy-duty mainstream database applications.

**Say amen somebody.** OK, let's say that Apple helps us alter the image problem, and we do our best to leave our database and platform prejudices at the door. Then what?

We have to make our commitment to start proselytizing databases and database tools among our colleagues. We have to show that our Mac workers can jump levels in productivity and performance if they are taught how to manage complex data with sophisticated database tools.

And finally, we have to sit down ourselves and get serious about what we should expect from today's best Mac databases. It's more than we're attempting now. □



"Today on 'Geraldo': Users, their Macs and the software they love."



# MEET THE GREAT IN COMPUTER PR

**T**HEY DON'T cold call. They don't work on commission. They've never even closed a deal. But when it comes to choosing computer products, buyers rely on them more than any other source.

Introducing the testing experts at Ziff-Davis. Working for ZD Labs and four individual magazine labs, they provide the most

comprehensive, reliable product information in the computer industry. Which is what attracts more business buyers to Ziff-Davis magazines. And leads to more sales for our advertisers.

*Ziff-Davis magazines attract more business buyers with the industry's most comprehensive and reliable computer product reviews.*

in Ziff-Davis magazines than in all other major computer publications combined, a sure indication of their effectiveness in reaching serious, active buyers.

In fact, marketers place almost as much advertising



## The test results more buyers depend on.

The computer market is changing faster than ever, with new technologies and new products being introduced nearly every day. To keep up, buyers require extensive qualitative—and quantitative—information to make the right purchasing decisions.

That's why Ziff-Davis has invested heavily in state-of-the-art, scientific

product testing. We've built and staffed four magazine-specific labs in addition to ZD Labs, the largest independent computer testing facility in the world. Together these labs perform complex tests on thousands of hardware and software products, fashioning each test script to the editorial perspective of each magazine. The results form the basis for the product reviews which appear in every Ziff-Davis magazine, and which have become worldwide industry standards.



# BEST SALES TEAM PRODUCT HISTORY.



## Specific labs for specific buyers.

Some buyers require comprehensive, comparative evaluations. Others need an immediate first look that's accurate. And still others need to know how products will perform in a multi-platform computing environment. So we've designed our five labs to precisely

meet their varied needs.

No other publisher, indeed no other company, makes such a commitment to labs-based product reviews. No wonder buyers in over 60 independent studies have consistently indicated that they rely on Ziff-Davis magazines more than any other publications.



## Great buyers make for great numbers.

Incomparable product testing is just one of the reasons Ziff-Davis magazines are the overwhelming choice of computer product buyers. Outstanding editors fashion needed buying information into the most powerful magnet for buyers. Proof: the eight Network magazines lead in total circulation with a primary readership of 3,549,000<sup>1</sup>—up a remarkable 198% in just the last 4 years.



## And a great place for advertising.

When you're the gathering place for the greatest market of buyers, it shows in your ad lineage. In 1992 advertisers placed almost 50% of their pages in the eight Ziff-Davis Network magazines with the rest scattered among 20 other computer publications.<sup>2</sup>

So when you're looking for the publications that are most effective in reaching more buyers, look no further. The tests results are in: Ziff-Davis is at the top of the charts.

Call 1-415-578-7300 for more information.

**ZD** The Ziff-Davis  
Magazine Networks

G R E A T B O O K S <sup>TM</sup>



# PowerPC: What to expect



JAVIER ROMERO DESIGN

Anticipation of Apple's upcoming PowerPC Macs has sparked more excitement and more misinformation than any product launch in Apple's history. With vastly different hardware at its center, the PowerPC-based Mac has the potential for tremendous horsepower. The Mac's move to RISC represents as significant a change as the move in home audio from vinyl records to CDs. Speculation on the new machines has left many users confused and uncertain about the capabilities of the PowerPC chips and the future of the current Mac line. In this Special Report, we take a look at what developers, users and managers can expect from Apple's new machines.

## RISC will put Mac on a new foundation

By Henry Norr

*Apple's  
PowerPC  
machines  
will be  
very much  
Macs —  
'not some  
Granny  
Smith kind  
of computer.'*

Jan. 24, 1994, will mark the Mac's 10th birthday. With luck, it also will mark the beginning of a new era for Apple, its developers and its customers.

On that Monday, barring a serious slip in the development process, the company will introduce and possibly even ship a new Mac model unlike any other built in the platform's first decade: Instead of a 680x0 processor, the new system's CPU will be a PowerPC 601, the new RISC microprocessor developed jointly by IBM Corp., Motorola Inc. and Apple.

But for all its uniqueness, that new machine will be very much a Mac — "not some Granny Smith kind of computer," in the words of Kirk Loevner, vice president of Apple's Developer Group. The machine will be running System 7 — partly in emulation, partly in ported form — and existing Mac programs should run without modification, Apple officials insist.

New software will, of course, be required to take full advantage of the processor, which experts said offers more than twice the power of a 68040. But — contrary to some widespread misperceptions — Mac users moving to RISC won't have to contend with PowerOpen, Apple's new Unix implementation, much less with Taligent Inc.'s upcoming object-oriented operating system.

The PowerPC-based Mac due at the beginning of next year will be the first of many. A second 601 machine, due in the summer of 1994, should take Mac performance to new peaks. A variety of other RISC Macs, ranging from notebooks and low-cost, entry-level systems to high-end, multiprocessing workstations and servers, will follow in late 1994 and 1995, as other implementations of the PowerPC architecture arrive.

Indeed, within three years the entire Mac line could be running on RISC.

### Dilemmas and opportunities.

For Apple the shift poses a difficult marketing challenge: how to keep customers buying 680x0 systems during the transition.

But over the longer haul, company officials believe, PowerPC processors will give Apple a significant competitive advantage in the markets of the mid-'90s: a superior price-performance ratio when compared with systems based on Intel 486, Pentium and P-6 processors (see story, Page 41).

For developers the new processor means both opportunity and burden. It promises unprecedented horsepower, and companies that move quickly to take advantage of it in imaginative ways stand to reap rich rewards.

But most Mac developers are already straining to keep up with Apple's other system-software innovations, and moving to a new processor means having to master

### Inside

**PowerPC buying strategies for managers**  
Page 37

**A profile of the PowerPC development team**  
Page 38

**A look at the PowerPC operating system**  
Page 39

**Developer plans for this new platform**  
Page 40

**Guest editorial by Michael Slater**  
Page 41



## Apple not the only player in the PowerPC market

Apple is likely to be the largest customer for the PowerPC processor, but it won't be alone in using the new chip.

IBM Corp., Apple's alliance partner and the original developer of the Power architecture, shows no sign of abandoning the industry-standard Intel x86 architecture in its mainstream personal computers.

But Big Blue's Advanced Workstations and Systems Division has announced plans to use the PowerPC in several ways, including upgrading the RISC System/6000 POWERstation 220, its low-end workstation, to the PowerPC 601. The company also will market a 601-based "note-book workstation" to be built by Tadpole Technology Inc., an Austin, Texas, and Cambridge,

England, company that builds SPARC laptops.

The IBM workstations, expected by early next year, will come with a new PowerOpen version of AIX, the company's implementation of Unix. It will include an Apple software product called Macintosh Application Services, which will let users run off-the-shelf Mac applications, including current programs written for the 680x0, alongside character-based, X Window and Motif Unix applications.

The PowerPC and PowerOpen are also available to other system makers, but so far the only takers have been a handful of companies making advanced, mainly defense-related workstations: Groupe Bull, Thomson-CSF and Harris Corp. — By Henry Norr

new tools and techniques — all for a market that for several years to come will be minuscule compared with the installed base of 680x0 Macs or Intel-Microsoft machines.

For Mac managers and users the dilemmas are less immediate. Savvy buyers know better than to defer needed hardware purchases because there's something better over the horizon (see story, right). But as PowerPC Macs get closer, the prospect will add a new and unknown variable to the already complicated calculus that choosing a Mac model requires.

**PowerPC hardware.** The first PowerPC Mac will reflect Apple's focus on broad-based, high-volume markets. It won't be a barn-burner by RISC standards, but it should deliver "better-than-Quadra performance at near LC prices," sources said.

The first PowerPC Mac, according to sources, is likely to incorporate a version of the chip running at at least 50 MHz, 4 or 8 Mbytes of RAM, a 2.8-Mbyte floppy drive, and built-in support for 16-bit color on screens up to 16 inches in size, sources said. It reportedly will have a processor direct slot but no expansion bus. Like the 68040-based Cyclone and Tempest Macs expected this summer, it will feature a new high-performance I/O subsystem.

Specs for the second PowerPC model are less clear, but current plans reportedly call for a system that will deliver three or four times Quadra performance at a street price of about \$3,500. It is expected to use a faster version of the PowerPC 601 and include a new high-speed expansion bus. Company engineers reportedly have been weighing several bus designs, including Apple's QuickRing technology and Intel Corp.'s Peripheral Component Interconnect specification.

**System 7, one way or another.** Perhaps because the PowerPC project, as part of the Apple-IBM alliance, was announced

at the same time as the PowerOpen version of Unix and the Pink (now Taligent) object-oriented operating system, considerable confusion has surrounded the question of system software for the RISC Macs.

In fact, Apple planned all along to deliver a version of the standard Mac operating system for the new machines. The challenge is that much of the hundreds of thousands of lines of code that make up the Mac system software and firmware were crafted in 680x0 assembly language to take maximum advantage of that processor, and porting such code is a massive task — one that will be far from complete when the first PowerPC Macs ship.

To solve that problem Apple has developed an emulator that enables the new machines to run 680x0 code by mapping the 68020 instruction set to corresponding PowerPC instructions. Using the same emulation technology, existing third-party software written for 680x0 Macs — including not only applications but also most utilities and extensions — should run on the PowerPC Macs.

**Speeding emulation.** The new chip has enough raw power to deliver approximately IICI performance in emulation mode, according to Apple officials. To get beyond that level, the company is attempting to port selected system components — those that offer the most "bang for the buck" — to PowerPC native mode.

This approach is based on research showing that applications typically spend more time executing Mac OS Toolbox and system routines than their own code (see MacWEEK, March 16, 1992). Aldus PageMaker, for example, spends 88 percent of its time executing Toolbox and system routines, and just three routines account for more than half of that time, according to Apple.

Thus, getting even a small proportion of the operating system running  
*See Overview, next page*

# Managers say they will not wait for the arrival of PowerPC Macs

By Jim Leeke

*Given the current technology available to them, managers are saying the wait is not worth the RISC.*

As they await dramatically improved price-performance ratios from RISC-based Macs, Macintosh managers already are thinking about incorporating PowerPCs into their organizations.

But RISC technology is still a year away from the Mac market, they say, and replete with unanswered questions. Most managers, therefore, see little benefit in deferring any planned purchases of existing hardware.

**Can't wait.** Toby Roberts, editorial art director for the Chicago Sun-Times, plans to buy two Quadra 950s by June. "Since I've got approval, I'm going to spend it now. I can't wait a year," he said. Many other Mac managers share his view.

"As we get close to products we can actually buy, we might defer [purchases]," said Thomas Unkefer, director of technology management for LTV Steel Inc. of Cleveland. "But I think it's real early right now."

Apple evidently agrees. "As far as recommended buying strategies, we think you should buy the right computer for your use right now," an Apple representative said. 680x0 Macs "are still going to be the base system for a little while yet," according to an official at Apple's Enterprise Systems Division, which is in charge of servers and networking.

With the first PowerPC Macs not expected until early 1994, most managers said it is too far ahead to change buying plans. "When peo-

ple will put the brakes on will be the third and fourth quarter," said Bill Whitley, president of the Whitley Group of Charlotte, N.C. He said that when planning computer purchases, much depends on the momentum of your business. "When you're going full steam, there's no way you can hold off and not buy what you need."

## PowerPC buying issues.

According to managers, several issues should be kept in mind when deciding whether to wait for the RISC machines.

► When will the PowerPC machines really be available? Prospective release dates tend to slip back when truly new technology is coming out. Counting on announced products to ship on time is a gamble; deferring purchases in anticipation of announced machines, whose specs, prices and schedules are still in flux, could prove downright foolhardy.

► What is the cost of not acting now, as well as the cost of the hardware? Passing on upgrades to more powerful existing Macs, such as Apple's new 68040-based models, could mean missing out on significant product enhancements for a year or more.

► What will the PowerPC do for you? Specifically, what do the enhanced capabilities mean to your company's business?

"You always hesitate to jump on any bandwagon. The installed base  
*See Managers, next page*



Thomas Unkefer, director of technology management for LTV Steel, believes that the entire market will be RISC-based in the next few years, but the difficult question is which operating system will come out ahead.



## Overview

From previous page

in native mode on the PowerPC could give a substantial lift to the performance of applications in emulation. "We're targeting the perceived performance of a 25-MHz '040," said Jordan Mattson, Apple product marketing manager for PowerPC tools; other officials said Mac IIx performance is a more realistic target.

The mixed mode architecture imposes substantial overhead for checking and routing each trap, and progress in porting key routines has been slow, sources said. But Apple engineers reportedly intend to get at least the most critical Toolbox routines and managers ported to native PowerPC mode in time for the release. In any case, QuickDraw will definitely be running in native PowerPC mode, sources said, and that alone will give emulated applications a significant boost.

**Native applications.** The outcome of Apple's porting project could shape initial market reaction to the PowerPC Macs since most

applications will have to run in emulation at the outset.

A more important long-run factor, however, is how fast third-party developers bring out applications that run entirely in native mode and thus take full advantage of the PowerPC's speed.

It's still too early to estimate how many such programs will be available at the launch of the first RISC Macs and how quickly others will follow.

For now development tools are limited, but Apple has promised a new C/C++ compiler and sponsored Echo Logic Inc.'s FlashPort binary-conversion technology.

To ease the transition, the company also is developing a new "fat binary" format, which will let developers include native PowerPC code in the same versions of their programs that run on 680x0 Macs: The RISC code will go into the application's data fork, while the resource fork will continue to hold 680x0 code and resources. Mattson said Apple will upgrade its Installer so it will be able to install only the 680x0 code, only the PowerPC code or both. □

## Managers

From previous page

and compatibility with standards means a lot," said Tony Butrum, president of Advanced Computer Graphics Inc. of Cincinnati. "I don't think a lot of people want to retool and put off a lot of things. I'd question them if they did."

Still, Butrum said, he sees legitimate reasons for waiting on the RISC machines. "For people whose productivity is going to be greatly increased by the new technology, then, yes, I think you have to consider waiting [for the PowerPC]."

**Cautious about Apple.** "I'm afraid that having seen the way Apple works for us right now, I'd really have to see something [of the PowerPC Macs] before I'd buy anything," said Michael Taylor, director of technical services for Editel Inc., a Chicago video-production company that already uses Macs extensively, together with high-end, RISC-based workstations.

"I know what problems I've had with a Quadra," Taylor said. "First we couldn't get one. Then when we got one, a lot of our software wouldn't run on it."

Apple, Taylor concludes, has "no track history in that technology. So what makes them think I'll be excited? It's too early."

LTV's Unkefer said the steel company, which has about 400 Macs, has been watching the RISC development scenario carefully. "We're inclined to think that some time in '94 or later, the entire market will be RISC-based. We intend to go in that direction."

## OS and application concerns.

The difficult question, Unkefer said, concerns operating systems, "since the [future] direction seems to be all operating systems running on those RISC chips. The question then is to pick the winning operating system."

A version of System 7 will operate on the PowerPC Macs, and Apple has introduced additional uncertainty by promising two other operating systems — PowerOpen and Taligent for the PowerPC (see story, Page 39).

"Apple has no track history in [RISC] technology. What makes them think I'll be excited?"

— Michael Taylor

If anything slows down a purchasing decision, Unkefer said, it's not knowing whether "you're headed in the right direction."

Another purchasing factor lies in deciding which applications are appropriate for a RISC machine.

Chip Pedersen, technical animator for an aerospace company and owner of CheapShot Graphics of Huntington Beach, Calif., said he believes that many high-end users will tap the RISC chip's higher power and performance but that many average users won't.

"For graphics and animation, the PowerPC is really going to change the story. If you are sitting for hours or days waiting for your animation to come out, you are going to want to use RISC," he said. "If you are doing only Excel spreadsheets or are not pushing past Quadra [performance levels], then you won't need RISC."

Marvin Berns, producer and co-owner of Markay Enterprises, a Toronto video-production company, agreed. "People are going to be happy with what they've got, which they aren't using to full capacity."

He also pointed out that the first PowerPC Macs will be low-end machines: Midrange and high-end PowerPC Macs are not expected until late 1994 and 1995. "At the Quadra level, where I'm at, I assume they won't be available for another year [after that]," Berns said.

Pedersen said he thinks RISC add-in boards will hit the Mac market within months, an interim solution until the PowerPCs ship. "If I can pop in one or more RISC boards, then that definitely is what I will do," he said. "And I think other people will do the same."

Like many others, Pedersen recommends going ahead with Mac purchases, with an eye toward the PowerPCs on the horizon. "I don't think Apple is foolish enough to come out with a RISC machine to make all the other machines obsolete," he said. "The purchase you make today will not be a dead-end machine, as long as you go for a reasonably high-end Mac." □

## Forces gather for PowerPC roundtable

The development of the PowerPC is centered at an Austin, Texas, facility called the Somerset Design Center. The building is named after the site in Arthurian legend where warring

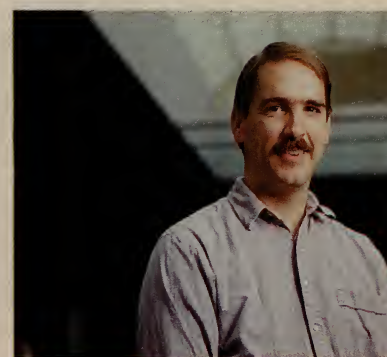
forces put aside their swords, and members of the three teams that staff the building say the spirit that inspired the name has been a key factor in the project's success thus far.



Members of Apple's Somerset delegation (left to right): Peter Voldstad, Jim Montanaro, Rich Witek, Bill Goins and Paul Nixon. (Not pictured, Casey King, Glenn Farrall and Tim Olson)

Only eight of the more than 300 people employed on the project come from Apple; the others are drawn in about equal numbers from Apple's two partners in the project, IBM Corp. and Motorola Inc. Bill Goins, Apple's original product manager for the Mac LC, said he's been pleasantly surprised by how well the team has gelled. "The IBM people have been the big surprise," he said.

Paul Nixon (right), chief of the Apple delegation, said: "We're a minority from a numbers point of view, but we're not treated that way. Sure, there are tough meetings where people end up yelling at each other, but it's over technical issues — cost, time to market, things like that — and not company lines."



"Part of the culture here is not to have an IBM or Motorola or Apple culture, but to have our own," said Motorola's Russell Stanphill, co-director of the center along with IBM's Tom Whiteside. According to Stanphill (left),



Somerset finished 1992 with all goals met, not only for the first PowerPC, the 601, but also three second-generation versions. The 603 is due at the end of this year, the 604 in the first quarter of next year and the 620 in mid-1994. "That means we're a year into a two-year design cycle, and we're still on time," he said. "In this business, that's a miracle."



# What's next for Mac OS?

By Bob Weibel

*Will Apple's OS strategies for PowerPC Macs breed contentment?*

Sometime in 1994, PowerPC-based Macs will gleam from dealer shelves alongside the Macs you know and love. But will the PowerPC Macs really be Macs? The short answer is yes. Apple knows that the Mac operating system and interface, not the underlying silicon, make a computer a Macintosh.

Consequently, the company is making sure the Mac operating system, with its trusty Trash can and other features, will beam from PowerPC Macs on Day One of their launch. Still, with PowerPC Macs around the corner, users and developers ponder what's in store.

Rick Rasmussen, vice president of C-Cube Microsystems of Milpitas, Calif., said he welcomes the entrance of high-power RISC processing to Apple's CPU line. "People are most concerned about the Mac interface," Rasmussen said, "and fewer care about what's inside the computer itself."

Rasmussen said that if Apple does a good job in porting the Toolbox, Finder and other aspects of the current Motorola 680x0-based Mac OS to the PowerPC Mac, everyone will appreciate the higher horsepower.

"But if Apple should switch over to a completely different operating system style, a la Unix, for example, then it will have done itself a great disservice," he said.

Fortunately, Apple's approach to operating systems for the PowerPC Mac will stress the compatibility and continuity that Rasmussen and most developers see as vital.

Jordan Mattson, Apple product marketing manager for PowerPC tools, recently reassured attendees of the Apple developers conference held at Macworld Expo in San Francisco that the Macintosh soul is not in peril. "Everyone should understand that PowerPC Macintoshes will be Macs," Mattson said. "They'll look like Macs and act like Macs and be Macs in every sense of the word."

## The more things change ...

It's natural that many people saw Apple's alliance with former adversary IBM Corp. as an ominous portent for the independent future of the Macintosh. The sight of Apple and IBM chief executives gripping and grinning on national television wasn't nearly as confusing as their vow to bring the Mac and IBM desktop computers into the 21st century with shared technology such as PowerPC chips, PowerOpen

Unix, and new operating software from Taligent Inc. and Kaleida Labs Inc. Present and future shock aside, that's a lot to digest.

Apple's been taking pains to clear up the confusion. Apple's Mattson reminded developers that the mainstream PowerPC OS will be a version of the current Macintosh operating system, with the same interface but retooled on the inside to run on the new PowerPC architecture.

For compatibility, the PowerPC Mac OS will emulate the current 680x0-based Mac OS, so you'll be able to run the Mac software you now use. However, since the emulation itself requires a lot of additional processing, applications running in emulation on the PowerPC Mac won't be nearly as fast as applications written or converted to run directly for the PowerPC RISC chips.

PowerOpen and Taligent will be two additional PowerPC Macintosh operating systems, but they're in no way fundamental to the launch of PowerPC Macintosh. PowerOpen will be to the mainstream PowerPC Mac OS what A/UX is to today's Macs, a separate operating system option for those whose work requires Unix (see story, right).

Taligent is a long-term development effort that won't have mainstream Mac implications for some time. In fact, Apple fears that speculation over the role of this futuristic object-oriented operating system is distracting developers from the developmental tasks at hand. For that reason Apple has been de-emphasizing Taligent in public.

**Going native.** With Apple promising us Macintosh heaven for the new PowerPC Macs, the next issue becomes one of features and performance.

Brad Burnham, president of Echo Logic Inc. of Holmdel, N.J., has given careful thought to Apple's PowerPC software strategy.

"Apple is going to support 680x0 emulation on PowerPC because it recognizes that to introduce a new architecture to the world today you have to bring the application base forward," Burnham said. "It's also going to support a native PowerPC development environment because it recognizes that the same applications running slower is not going to sell a hot new machine."

Echo Logic is making ready a PowerPC software development tool known as FlashPort, which con-

verts executable 680x0 Mac programs into PowerPC Mac programs.

FlashPort may be one trump card helping to ensure market success for the PowerPC Macs because it will provide a way around a Catch-22 predicament that's crippled other promising new platforms: achieving a critical mass of software.

The problem is that because the initial base of PowerPC Macs will be small, software developers may be reluctant to invest the resources required to port their products to run in native mode on the new machines. But if most software runs only in 680x0 emulation mode, with its relatively slow performance, customers won't see an advantage in moving to the RISC machine, and sales will suffer, thus making developers all the more reluctant to port, and so on, in a vicious circle.

FlashPort changes the calculus, Burnham said, because it makes it possible for developers to convert existing products to run on PowerPC Macs at nearly the performance levels of fully native applications, at a fraction of the development cost.

Apple, in fact, has promised that the programming interface for the PowerPC Mac OS will match closely that of System 7 on current Macs. That will make it easier for developers to build both 680x0- and PowerPC-based applications at the same time.

## Not just a faster machine.

According to sources at Apple, the company's marketing strategy is based on the idea that you won't buy into PowerPC performance just to run your existing applications faster.

Guy McCarthy, president of Language Systems Corp. of Herndon, Va., developer of a Pascal compiler for PowerPC Mac OS, said that Apple has suggested the PowerPC will perform today's tasks

faster, but at the same time it will do other things beyond the reach of the current crop of Macs.

"I believe Apple intends the extra RISC horsepower to be used for things like speech processing, even digital video processing," McCarthy said. Nothing is nailed down yet, but Apple's Mattson said the RISC-based performance will indeed allow Apple to extend the Mac interface in ways McCarthy suggests, and more.

**History repeats.** McCarthy pointed out that Apple's strategy has a historical precedent. About four years ago, Sun Microsystems Inc. moved from a Motorola 68000-based architecture to a type of RISC architecture it dubbed SPARC.

Sun kept its same operating system and user interface and consequently lost none of its customer base. In fact, driven by SPARC's higher performance, the move almost quadrupled Sun's installed base, according to McCarthy.

For Apple, the PowerPC Mac operating system development is a daunting technical task, given the complexity of the Mac OS and the fundamental differences between the PowerPC and Mac's 680x0 processors. Still, no one we've spoken to doubts Apple can pull it off.

However, despite assurances of compatibility, some Apple executives may lie awake at night wondering whether the performance and feature advantages of PowerPC will motivate droves of Mac owners — many of whom haven't yet migrated to System 7 — to face another OS transition.

Apple is moving to RISC, and the Mac OS with it; the question is how long Apple's product line will straddle the old and the new. In this, your checkbook may have the last word. □

## Understanding the 'power' in PowerOpen

PowerOpen will be the operating system for PowerPC Mac owners who need to run Unix-based applications. However, the "power" in the name does not mean that PowerOpen will be the mainstream OS for PowerPC Macs, any more than A/UX is today.

When the ink dried on the Apple-IBM Corp. agreements in October 1991, IBM had agreed to provide Apple with an upcoming version of AIX, IBM's Unix implementation. In return, Apple agreed to provide IBM with the technology needed to allow standard Macintosh applications — starting with the Finder — to run under the new AIX, much as they do under A/UX today.

Apple will apply the PowerOpen label to the new version of A/UX that results from the deal; IBM will do likewise with the new AIX.

The "open" in PowerOpen derives mainly from the Open Software Foundation's OSF/1 operating system, upon which IBM has based its latest AIX development. OSF/1 is a version

of Unix put together by a consortium of companies (including IBM) that didn't like the partnership of Sun Microsystems Inc., the dominant player in the Unix workstation market, and AT&T Co., the developer of Unix.

According to sources, this consortium didn't want top competitor Sun helping to develop the next-generation Unix standard. Also, as another "open" gesture, Apple and IBM announced they'll make PowerOpen technologies available to other vendors, though details have not been forthcoming.

An IBM RISC workstation running PowerOpen could offer industrial-strength power for Unix scientific/engineering and other vertical-market applications, and at the same time offer the popular Mac environment for personal productivity in a corporate office environment. With Microsoft's Windows NT struggling for the same desktops, the competition could get interesting.

— By Bob Weibel



# Developers are jumping on PowerPC bandwagon

By Jeff Ubois

*Developers are enthusiastic about writing for the PowerPC because of the increased speed and new features it will make possible.*

**D**espite some uncertainties, software publishers are making firm commitments to port their applications to the new PowerPC machines.

"Every time you go to a new level of performance you get existing or new companies coming up with great ideas of what to do with it," said Eric Harslem, Apple vice president for desktop products.

A little less than a year ago, developing products for the PowerPC might have seemed a bit risky. But Apple now stresses that it will phase out the 680x0 line and replace it with the PowerPC. "Three to five years from now I think all Mac customers except at the very low end will be buying the PowerPC," Harslem said.

Developers' reactions to the PowerPC and Apple's efforts to help them port applications are generally positive.

"Microsoft is very enthusiastic," said Benjamin Waldman, manager of Macintosh technology at Redmond, Wash.-based Microsoft Corp. "What is really exciting about the PowerPC is you have a lot more power available, and you know there are a lot of processor-intensive things that will work a lot better."

Although existing Mac applications will run under the PowerPC's emulation mode, "We want to go beyond that; you need native code to take advantage of the speed of the chip," Waldman said. "We'll have Word and Excel for the PowerPC available when [the PowerPC-based Macs] ship."

And for users, availability of software written in native code is key to justifying the purchase of a PowerPC-based machine.

## Developers' perspectives.

Developers of high-end applications share Waldman's enthusiasm, partly because of the chip's speed but also

for the new features it will enable.

"Color publishing just screams for more horsepower," said Dave Roberts, director of publishing products at Seattle-based Aldus Corp. Roberts added that faster speeds could also increase user productivity by allowing activities such as repagination to run in the background.

Programs that tax current Mac models — and sometimes their users' patience — should deliver much better performance and thus win a wider audience once ported to the PowerPC. Officials of Insignia Solutions Inc. of Mountain View, Calif., for example, said that SoftPC, its IBM PC emulator software, achieves 486 performance and more on RISC platforms.

Others argue that even routine applications could use more speed. "If you look at word processing, you might say you can type only so fast, so why do you need this kind of power?" said Brad Burnham, president of Echo Logic Inc. of Holmdel, N.J. "Yet there are people in the newspaper business, for example, where justification and hyphenation runs take forever, even on Quadras. There are also many users running large businesses on a spreadsheet, and for them even spreadsheets have become real CPU hogs."

Microsoft's Waldman agreed that the PowerPC will be a boon for users of large spreadsheets, especially those who want to add extra touches such as QuickTime movies.

Still, the appeal of lightning-fast traditional applications is limited. As Harslem put it, "MacWrite running 10 times faster won't have overwhelming appeal to the average user." So developers also are looking to create new applications and beef up existing ones with innovative features.

Most developers are vague about specific new features the PowerPC will enable, but voice recognition, handwriting recognition, modem-less telephony, 3-D graphics and video are usually mentioned.

## Multi-platform developers.

Companies that already have products running on multiple



RICH FROSHMAN

platforms probably have an edge in developing for the PowerPC.

"We always want faster hardware, and we're not worried about porting difficulties because our software already runs on several platforms, including the RS/6000, from which the PowerPC is derived," said Doug Stein, member of the technical staff of the MathLink Development Group at Wolfram Research Inc. of Champaign, Ill.

Chris Butler, manager of Macintosh development at Frame Technology Corp. of San Jose, Calif., said: "FrameMaker is already ported to 30 platforms, so we've worked through a lot of the kinks associated with going over to different architectures. We are very enthusiastic about making a PowerPC product."

Like Stein and others, Butler applauded Apple's efforts to help the developer community. "Apple has done a good job in getting information out to developers. Overall, the disclosure level has been pretty good," he said.

**Uncertainties.** Even developers committed to the PowerPC are wrestling with numerous uncertainties about marketing, the quality and availability of tools and compilers, and how to port their code.

Waldman said Microsoft was uncertain whether software for the PowerPC would be considered an upgrade or treated as a new and separate version. "We have to think about pricing and distribution issues," Waldman said. "For example, do you ship both versions in the same box? If you have two boxes, will dealers want to stock all your different versions?"

Manny Menendez, president of Deneba Software of Miami, said his company would probably offer a PowerPC version of Canvas as an upgrade. "Right now, we are planning to handle it as an upgrade rather than a new version and [treat] the PowerPC as if it were just another Mac model," he said. "But, of course, that is subject to change without notice."

Others are thinking about poten-

tial technical problems. "There are tons of uncertainties," said Frame Technology's Butler. "Are the compilers good enough to produce good code? That is the one I am focused on."

Apple is pushing developers to use American National Standards Institute C code and will be offering a new C/C++ compiler developed with Lucid Inc. of Menlo Park, Calif. In the meantime, Apple recommends IBM Corp.'s compiler for the RS/6000 as an interim means to clean up old code.

Wolfram's Stein also has doubts about the C compiler. "For us, the question is whether the C compiler Apple is going to use is good or not; if the tools are acceptable, then we are fine."

Third-party tools are another issue, but several companies are working on the problem. "We are working with Apple with the intention of supporting our development tools on the PowerPC," said Steven Levine, product marketing manager for the Bedrock framework at Symantec Corp. of Cupertino, Calif. "We think the PowerPC will provide excellent performance for developers using our cross-platform development tools."

**Porting the code.** Porting 680x0 programs for the Mac — often written in a hodgepodge of Pascal, C, C++, assembly and other languages — to the rigid C code needed by the PowerPC is shaping up to be a serious challenge.

Developers have several options to choose from:

- ▶ Rewrite code from scratch.
- ▶ Recompile their code if it is already in C or C++.
- ▶ Translate their source code manually, then recompile.
- ▶ Use Echo Logic's FlashPort binary-level translator.
- ▶ Rely on Apple's 680x0 emulator.

According to developers, complete rewrites probably won't be necessary often. "The programmatic interface in the PowerPC will be identical to the Mac," said

## PowerPC porting options for developers

PORTING METHOD	ADVANTAGES	DISADVANTAGES
Emulation	Free, takes no work	Slow
Recompile code	Fast, straightforward	Not always possible
Source translation	Quick first cut	Details may take time to fix
FlashPort (binary translation)	Fast, handles multiple language types	Available from only one vendor



## Likely pitfalls for PowerPC developers

Developers already are beginning to get a sense of where problems are likely to crop up when porting their applications to PowerPC machines.

"There are three areas where people will get into trouble," said Doug Stein, member of the technical staff of the MathLink Development Group at Wolfram Research Inc. of Champaign, Ill. "One is if they are depending on the control definition function, code that is inherently 68000 code; another is if they are using a lot of assembly language; and the third is the issue of floating point because the size of the floating point is different on the PowerPC from 68000 Macs."

Rich Norling, chairman and CEO of Language Systems Corp. of Herndon, Va., warned that many developers will have to modify their applications because the PowerPC supports only single- and double-precision math, not the extended-precision format available on the 680x0 family.

"Applications that use floating-point data types can't use automatic translation on assembly language," he said. "Those folks will have to switch their application to double precision and recompile." — By Jeff Ubois

Echo Logic's Burnham, "so rewrites are not to take advantage of new functionality but to improve the cross-platform capabilities and go back to clean up old code to improve performance and shrink code size."

For example, he said, developers may want to write a more GUI-independent code base so they can use shared libraries for their Mac and Windows versions.

**Pros and cons.** According to developers, programs written using ANSI-standard versions of C prob-

Pascal compiler that will create native PowerPC code. "We expect to ship in July, and the price will be a few hundred rather than a few thousand dollars," said company Chairman and CEO Rich Norling.

Sierra Software Innovation of Incline Village, Nev., is offering p2c, an automatic Pascal-to-C language translator. The company also offers engineering and translation services.

Assembly-language translation tools are available from MicroAPL Ltd. of London.

Echo Logic's FlashPort takes a

ably can be recompiled easily. "The recompile is going to be the most attractive option for people who have relatively portable code," Burnham said.

Companies with large investments in a Pascal code base have several options. Language Systems Corp. of Herndon, Va., is developing a

completely different approach. It performs binary-level translations to native PowerPC code from a variety of sources. The company, which is working closely with Apple, said its approach allows it to generate native PowerPC code from Mac applications written using different languages and different compilers.

"We don't care whether the code is Pascal, C, Modula 2, assembly or any combination of those," Burnham said. "When you do a source-level translation, you have a great sense of optimism because in a matter of a day or so it gives you 90 percent of the code automatically generated. But the question is, what does it take to fix the remaining 10 percent?"

Burnham said Echo Logic would announce prices and a shipping date soon.

Finally, the PowerPC also will run plain-vanilla Mac applications using an emulation mode expected to offer performance at least equivalent to the Mac IIci. Some companies will use the emulator to run portions of their code that they don't want to port.

Wolfram's Stein, for example, explained that Mathematica on the Mac uses two binaries, a kernel and the user interface. Wolfram may

simply port the kernel, which is where most of the performance increase will be noticed, and let the user-interface module run on the emulator.

Others say the emulator just isn't fast enough. "The emulator works very nicely, but it is slow compared with what the PowerPC is capable of doing," Butler said. "I wouldn't encourage someone to buy a PowerPC and run Frame-Maker in emulation mode."

**Worth the wait?** Clearly, the PowerPC is changing the way developers think about the Mac, their product lines, as well as emerging voice, video and handwriting applications.

The PowerPC also will transform Apple's networking strategies. PowerPC-based servers could help the company expand its foothold in corporate networks. And the chip's faster speeds could swamp existing networks, requiring 100-Mbps Ethernet or Fiber Distributed Data Interface.

Developers agreed that the availability of software is vital to the success of the PowerPC. Ultimately, how quickly users begin adopting the PowerPC is directly related to when PowerPC software really becomes available. □

## Guest editorial by Michael Slater

# How does PowerPC stack up?

Apple's decision to adopt the PowerPC architecture will have enormous implications for users of Macintosh computers. While Apple plans to continue building 68000-family Macs, the PowerPC machines promise to offer superior price and performance and, therefore, should be very attractive to most Mac users.

Apple promised a nearly seamless transition to PowerPC, with full emulation of the 68000 instruction set to allow users to run existing programs in lieu of new PowerPC versions.

While Apple claims that the emulator will provide performance comparable to today's midrange Macs, it remains to be seen how fast and trouble-free it will really be.

Apple surely will work hard to make the transition to PowerPC as easy as possible, yet it is still likely to involve some grief—at least as much as the conversion from System 6 to System 7 or from a 68030 machine to a Quadra, both of which required new versions of many applications.

**Fight or switch?** Now that nearly all of the major Mac applications are available for Windows as well, Mac users facing a transition to PowerPC will have to consider whether they should follow Apple or make the switch to Windows.

At the heart of each of these platforms is the microprocessor — PowerPC in the case

of the future Macintosh and the 486 and Pentium microprocessors for Windows. Since benchmark ratings for both PowerPC and Pentium remain undisclosed, exact comparisons are impossible, but preliminary information indicates that the two processors will be comparable in performance, and both are on similar production schedules. There, however, the similarity ends.

The Pentium microprocessor is burdened with an antiquated instruction-set architecture, resulting in a much larger, more complex chip to achieve the same performance level.

The first PowerPC chip, the 601, includes 32 Kbytes of cache memory on a 2.8 million-transistor chip that measures about 11 millimeters square. The Pentium chip includes only 16 Kbytes of cache memory but requires more than 3 million transistors and is larger than 16 millimeters square. This comparison makes it clear that the burden of Pentium's old CISC (complex instruction set computing) architecture is significant, Intel's hype aside.

In other words, PowerPC has a significant architectural advantage, and PowerPC processors at a given performance level should be much less expensive than comparable x86 processors.

While pricing has not been released, Apple has said in the past that it considers

\$50 to be the required price for a high-volume processor. It will be a very long time before Pentium comes down that far. The PowerPC is likely to offer Pentium-level performance at less than 486DX prices.

Unfortunately, it is not ensured that a chip-level price advantage will translate into a system-level price advantage for users. Because of Apple's proprietary approach, Mac users don't benefit directly from the intense competition of the IBM PC and compatible market since the configuration and pricing of PowerPC Macs is entirely up to Apple.

What about PowerPC systems from other vendors? Isn't this supposed to be an open architecture? Well, not really. Yes, there is supposed to be a version of Unix for the PowerPC available to other vendors, called PowerOpen, that will be able to run Macintosh applications.

But PowerOpen will require much more RAM and disk space than Apple's PowerPC Macs, which will run a ported version of System 7, making it impossible for any other vendor to compete with Apple at the high-volume price points. PowerPC allows Apple to create an impression of openness without having to cope with direct competitors.

**PowerPC alternatives.** Windows users soon will have the alternative of using Windows NT, which will run on the MIPS and Alpha architectures as well as on the x86. With MIPS, at least, there will be chips

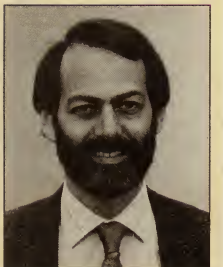
that provide comparable performance to the PowerPC chips at similar prices, and systems based on these processors could be a potent alternative to PowerPC Macs.

In addition to having a true multivendor environment, these systems will have the advantage of a robust, multitasking, multi-threaded operating system.

Apple, on the other hand, is still stuck with an outdated, mediocre operating system underlying its nice user interface. Apple has plans in place to move to a more capable, microkernel-based operating system, but it appears that this transition will take years and will introduce some major software incompatibilities along the way.

To keep high-end Mac users from migrating to Windows NT, Apple needs to move much more aggressively to enhance its operating system. And as long as Apple continues with its proprietary software strategy, Mac users will be held hostage to Apple's system design decisions and pricing policies. □

*Michael Slater is the president of MicroDesign Resources of Sebastopol, Calif., where he serves as editor in chief of the Microprocessor Report newsletter and the program director for the Microprocessor Forum conference. Before founding MDR, he worked for 10 years as a hardware design engineer and consultant.*





VOL. 3  
NO. 1

Ziff **NET**  
Mac

**NEWS**

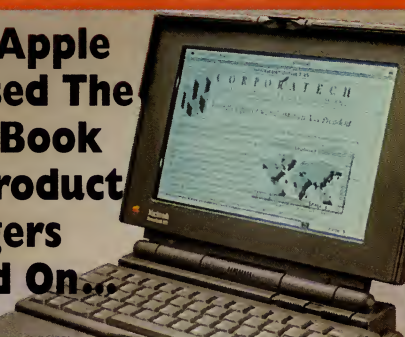
Over 100,000 interested computer users rely on ZiffNet for virtually anything that has to do with computing. It's all here — over a thousand of the best downloadable shareware and freeware titles, including the world-famous *MacUser* utilities...late-breaking industry news...computer buying information...interactive industry forums...technical support...and more — all available **online!**

### Ten Essential Programs For Everyone

CATEGORY	SHAREWARE	FILENAME & LOCATION
Antiviral	<b>Disinfectant:</b> The premier antiviral utility all Mac users should have.	DISINF.SIT Library 8
Compression	<b>Stuffit Lite:</b> Free up hard disk space and decompress files downloaded from ZiffNet/Mac with the ruling monarch of Mac compression utilities.	SITLTE.SEA Library 1
Font Management	<b>Carpetbag:</b> Manage your font and sound collections with this shareware control panel.	CARPET.CPT Library 3
Calendar	<b>Calendar DA:</b> This simple and elegant monthly calendar has space for daily appointments.	CALEND.SIT Library 2
Paint Programs	<b>LightningPaint:</b> A deluxe paint program that won't paint you into the poorhouse!	LPAINT.CPT Library 1
Personal Information Manager	<b>Address Book:</b> This nifty application has a great search engine, dials phone numbers and prints envelopes, labels, Rolodex cards and DayTimer sheets.	ADDRBK.SEA Library 1
Screensaver	<b>Darkside:</b> Protect your screen from burn-in — try Darkside, a mondo cool screensaver.	DARKSI.CPT Library 1
Spreadsheet	<b>Mariner:</b> Spread your sheets to the wind with Mariner, a superb shareware spreadsheet with a dazzling interface.	MARINE.CPT Library 1
Telecom	<b>ZTerm:</b> It does scripting, macros and lots more. May be the only program you'll ever need for telecommunicating.	ZTERM.CPT Library 1
Word Processing	<b>miniWRITER:</b> A great text editor that's perfect for small notes, memos and so on. A must-have for composing messages off-line for online services.	MINIWR.SIT Library 2

**There are over a thousand more top-rated programs to choose from. Just type GO DOWNTech for a complete listing.**

**When Apple Released The PowerBook 145, Product Managers Logged On...**



Right after Apple® released its new line of PowerBooks, the PowerBook™ development team logged onto ZiffNet/Mac's Executives Online forum to talk with *MacWEEK* and *MacUser* editors and readers. The resulting threads about the new technology were a rollicking, diverse discussion ranging from delivery dates and potential problems to what the team planned next. Drop by the Executives Online forum to tell industry insiders what you really think about their products...find out what's hot...and download the latest demo of a product. To see what's in store, type GO CALENDAR.

**Get More Out Of Your Favorite Ziff Magazines ... Online!**



ZiffNet/Mac gives you direct access to the archives of Ziff magazine product reviews, buying guides, tips and tricks, and more. You'll also have in-depth information **linked to the current printed issues**, so you can dig deeper into topics of interest.

For example, when you see a new product reviewed in *MacUser* or *MacWEEK*, you can log onto ZiffNet/Mac and discuss it with the lab analysts, ask questions related to your own specific requirements — even download a demo of the product! You can also speak directly to Ziff editors and columnists like *MacWEEK* editor Henry Norr and *MacUser* columnist Bob LeVitus to get their opinions



# READ IT, RESEARCH IT, DOWNLOAD IT, DISCOVER IT ONLINE, ON ZIFFNET/MAC.

NEW  
MEMBER  
SPECIAL

and insights. All you have to do is type GO MACMAG. This kind of access to information and industry experts simply isn't available **anywhere else.**

## Custom Utilities Put You Into The Power User's Seat.



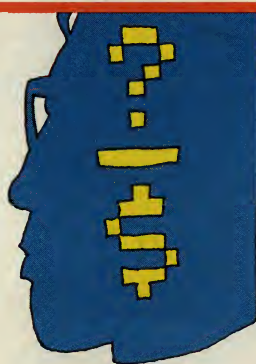
Each month, ZiffNet/Mac, in cooperation with *MacUser*, brings you a new custom utility designed to solve some critical System problem or to make life a little easier on the Mac. Best of all, each monthly utility can be downloaded FREE of connect-time charges. Previous offerings include winners like Find Pro II and Alias Assassin — both seen in the pages of *MacUser*. The current FREE utility can be found by typing GO POWERTOOLS. Other utilities, found in the *MacUser* Forum Library (GO MACUSER), can be downloaded at regular rates.

## Get The Inside Scoop On The Industry The Same Way Industry Leaders Do.



What will computer industry insiders be talking about next week? Find out on ZiffNet/Mac! You'll get weekly news from *MacWEEK* — a controlled circulation publication — not available on any newsstand. But with ZiffNet/Mac, industry news, market trends, even inside information from Mac the Knife are all delivered right to your Mac the Friday night **before** they're published. There's also *NewsBytes*, the award-winning international daily newswire, to keep you right up to the minute on late-breaking developments.

## Are You Really Making The Right Buying Decision?



Before you spend a dime on a system, printer, monitor or software, check out ZiffNet/Mac's Buying Advice. Here, in one place, you'll have access to the information you need to make a smart decision — objective information drawn from dozens of sources. ZiffNet/Mac guides you through the whole buying process. Search through reviews drawn from Ziff magazines...check out editor choice awards...research compatibility issues

...even query the *MacUser* Ultimate Buyer's Guide for the latest MiniFinders reviews. Best of all, you can ask Ziff experts, editors and other users for their opinions before you buy. Just type GO BUYER.

## New Members To Receive Free Software Download!

Enroll online now, and receive a FREE download of "Mac System Tips and Tricks," plus the complete ZiffNet/Mac Membership Kit, with maps of the service, the *Greatest Hits Software Collection* and your first issue of *Threads*, the ZiffNet/Mac newsletter. To get your FREE software download, type **GO MACGIFT** after enrollment.

## POINT AND CLICK YOUR WAY ONTO ZiffNET SPECIAL INTRODUCTORY OFFER

Mac

The CompuServe® Information Manager (CIM), ZiffNet/Mac edition, is a graphical interface that makes CompuServe especially easy to use. There's no need to use a text-based terminal emulator to talk with the editors or download software. CIM demystifies the complex world of modems and online services by giving Mac users the familiar windows, pull-down menus and icons of the Mac interface.

### A Great Value — Yours For Just \$15.00!

Receive all this for only \$15.00, plus \$2.50 postage and handling:

- \$15 Credit for Online Time
- CompuServe Information Manager, with ZiffNet/Mac Signup Module
- Quick Start Guide
- Map of the ZiffNet/Mac Service

**To order, call 1 (800) 848-8199 and ask for the ZMac Representative.**



CIM's point and click interface makes logging onto ZiffNet/Mac a breeze.

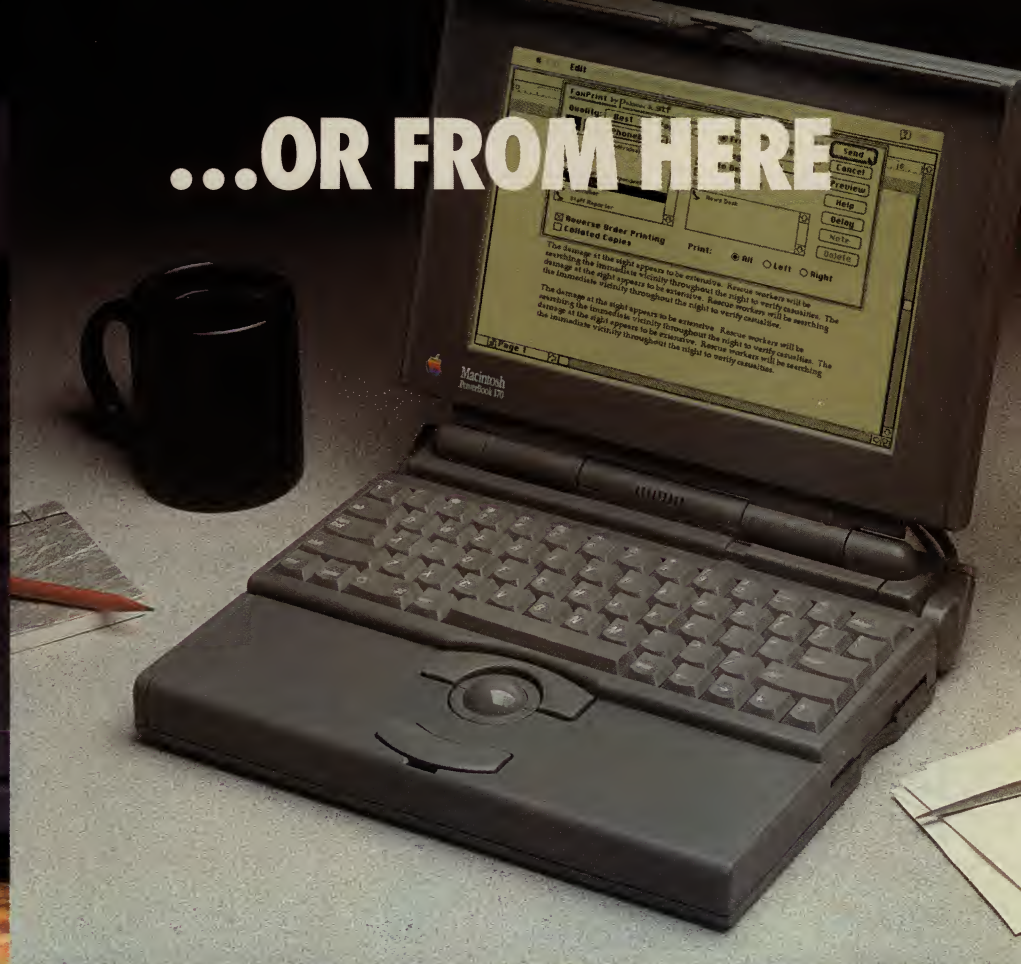
ZiffNet/Mac membership fee is just \$2.50 a month. Standard connect-time charges apply for certain services like downloading software: \$12.80/hour at 1200 and 2400 baud; \$22.80/hour at 9600 baud. Rates are fully explained online.



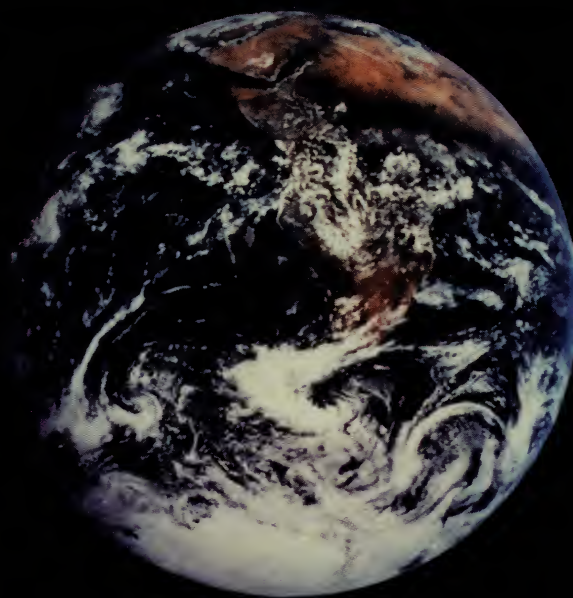
# FAX FROM HERE



# ...OR FROM HERE



# TO ANYWHERE HERE



## WE'LL GIVE YOU THE WORLD AND \$50 BACK

### \$50 REBATE\*

On most PSI fax/data modems through April 30, 1993. Purchase your PSI fax/data modem from your preferred reseller, attach this coupon with proof of purchase and your name, company, address, phone and fax and send it to: PSI Integration Rebate, 851 E. Hamilton Ave., Suite 200 Campbell, CA 95008. Your Purchase must be made before 4/30/93. Limit one rebate per purchase. Valid for US and Canadian customers only.

☐ I am a MacWeek subscriber

\*Offer not valid on COMstation I and II or PowerModem I and II.

Just click your mouse. It's really that simple. Then you'll see how a PSI fax/data modem can dramatically increase your productivity. PSI brings you a full range of fax/data modems for the Mac, with the latest standards in data compression and error correction. Choose from PSI's COMstation line of desktop models, including ultra-high speed and networkable modems, or the internally-mounted PowerModem family that puts the power of a fax right in your PowerBook. Keep in touch and keep it simple. **Call 1-800-622-1722.**

Desktop Products	PowerBook Products	Data	Fax	Retail Price
COMstation ONE	PowerModem	2400	9600	\$195
COMstation TWO	PowerModem II	2400	9600	\$295
COMstation THREE	—	14.4	N/A	\$445
COMstation FOUR	PowerModem III	9600	9600	\$445/\$395
COMstation FIVE	PowerModem IV	14.4	14.4	\$545/\$495
COMstation Network	—	2400	9600	\$395

**PSI FAX/DATA MODEMS. WE GIVE YOU THE WORLD.™**



**INCLUDES OCR TECHNOLOGY FROM CAERE™ THE MAKERS OF OMNIPAGE™.**



# Reviews



## Photoshop shines brighter with move to Version 2.5

*Better speed, improved separations, new tools and open architecture highlight solid upgrade.*

### score card

#### Adobe Photoshop

Adobe Systems Inc.

Version tested: 2.5

List price: \$895\*

Overall value ♦♦♦♦♦

With Photoshop 2.5, an already great application just got better. The many new features are well-considered, well-implemented and provide a real productivity boost both for creative work and routine production tasks. The new virtual-memory scheme significantly reduces the penalty exacted by insufficient RAM, the new screen-redrawing technique is noticeably speedier, new color-separation algorithms provide a marked improvement over their predecessors, and a new open architecture holds great promise for future third-party acceleration. The upgrade may not be totally bug-free, but any minor problems are more than outweighed by the very considerable advantages the new version offers. This upgrade is highly recommended.

Performance ♦♦♦♦♦

Features ♦♦♦♦♦

Ease of use ♦♦♦♦♦

Documentation/support ♦♦♦♦♦

\*Upgrade from Version 2.0, \$129; upgrade to CD-ROM version, \$199.

### RATINGS KEY

- ♦♦♦♦♦ Excellent
- ♦♦♦♦ Very good
- ♦♦♦ Good
- ♦♦ Fair
- ♦ Unsatisfactory

By Bruce Fraser

Adobe Photoshop is one of the great Mac applications. It is feature-rich and useful in a wide variety of situations for both creative work and production. The application has been one of those responsible for putting Macs, rather than some other kind of box, on people's desks, and its plug-in modules have become a de facto standard, spawning a mini-industry of third-party add-ons.

Now the long-awaited upgrade to Photoshop, Version 2.5, is here. It isn't quite as dramatic a leap forward as was the upgrade from Version 1.0 to Version 2.0, and the \$895 program won't turn your Mac into a Quantel Paintbox, but it's a very worthwhile effort nonetheless.

The new features are well-thought-out, making many of the program's more advanced features much more accessible, and the performance enhancements are significant, although not startling. The quality of the color separations also has improved, particularly in the handling of very saturated colors. Individual features aren't dramatically faster than in its predecessor (pending the availability of 2.5-savvy acceleration hardware), but overall it's a much more productive tool.

The Photoshop Toolbox looks almost unchanged. One new tool, Dodge and Burn, replaces the Pen tool that now resides on the Paths palette. Dodge and Burn works very much like its traditional darkroom counterpart, letting you selectively lighten or darken areas of the image in a way that anyone with darkroom skills will find immediately intuitive.

Like most of the other tools, Dodge and Burn is pressure-sensitive when used with a pressure-sensitive stylus and digitizing tablet, such as those from Wacom Technology Corp. (see story, Page 50). The color swatches representing the current background and foreground colors have two refinements: You can click a Switch Colors icon to reverse foreground and background, or reset the foreground and background to black and white (or whatever defaults you have set) by clicking the Default Colors icon.

Tool size, pressure and opacity

are now controlled from a floating Brushes palette. The various brush modes are selectable from a pop-up menu, and you can choose a variety of soft- or hard-edged brushes in different sizes. You can create, save and load custom brush shapes.

The other new Toolbox element is the Quick Mask feature. Clicking the Quick Mask icon lets you use any of the painting tools to create a mask directly on the image, without resorting to paths or alpha channels. The paint thus applied is translucent, so you can still see the masked elements in the image: To make a soft-edged mask, you simply use a soft-edged brush. Clicking the adja-



Photoshop's palettes for Channels and Paths make dealing with multiple masks much more accessible, and a Quick Mask mode lets you paint a mask directly on the image.

cent Standard Mode icon returns you to normal mode, with the rest of the image, excluding the masked area, selected. For creating simple masks, this is a major timesaver.

More-complex masking has been

made easier thanks to two new floating palettes: Channels and Paths. The Channels palette resembles Aldus FreeHand's Layers palette; you can click to make channels visi-

See Photoshop, next page

## LaserWriter Pros keeping up with LaserJets

By Rick LePage

The unceasing volatility of the PostScript printer market has forced longtime market leaders such as Apple and Hewlett-Packard Co. to ship products that feature leading-edge technology at much lower prices than previous models. The \$2,099 LaserWriter Pro 600 and the \$2,529 LaserWriter Pro 630 are Apple's latest responses to these challenges.

The LaserWriter Pro 600 and 630 are targeted directly at HP's \$2,399 LaserJet 4M (and use the same engine as that printer), but they are also price-competitive with high-performance printers from other manufacturers.

The 600 and 630 also replace the LaserWriter IIx and IIg at the top of Apple's PostScript printer line. (The IIx and IIg are still on Apple's price list, although it is reasonable to expect that they will be discontinued after inventory has been reduced.) As with the main differences between the IIx and the IIg, the 600 and 630 differ in interface options. The 600 has LocalTalk, serial and parallel interface options; the 630 has the same options and adds EtherTalk and SCSI interfaces.

As is the case with most PostScript printers available today, the LaserWriter Pro series features an all-ports-active mode that allows you to

send print jobs from different network connections simultaneously. We were able to print consecutive jobs from both serial and LocalTalk connections with our 600.

**Start your engines.** The LaserWriter Pro 600 and the 630 feature Adobe Systems Inc.'s PostScript Level 2; HP's PCL 4+ emulation. See LaserWriter, Page 48

### score card

#### Apple LaserWriter Pro series

Apple's LaserWriter Pro 600 and 630 use the same Canon EX 600-dpi print engine found in Hewlett-Packard Co.'s LaserJet 4M, the printer that the 600 and 630 will be immediately compared with. Instead of the 4M's speedy RISC processor, the LaserWriter Pros use a 25-MHz 68030; as a result their performance is a bit behind HP's offering but still comparable to or better than existing 300-dpi printers. On the whole, Apple has produced extremely competitive printers at very good prices.

► **LaserWriter Pro 600** is the bargain model, lacking only two features found in the 630. The performance is the same as the 630, and its low price makes it a good buy for users on a budget who still want high-resolution output.

► **LaserWriter Pro 630** has built-in Ethernet and SCSI capabilities, making it more versatile than its lower-priced sibling and, in our opinion, a better buy than the 600 for savvy users.

	LaserWriter Pro 600	LaserWriter Pro 630
Overall value	♦♦♦♦♦	♦♦♦♦♦
Price	\$2,099*	\$2,529*
Performance	♦♦♦♦♦	♦♦♦♦♦
Features	♦♦♦♦	♦♦♦♦♦
Configuration	♦♦♦♦	♦♦♦♦
Compatibility	♦♦♦♦♦	♦♦♦♦♦
Documentation/support	♦♦♦♦♦	♦♦♦♦♦

\*LaserWriter Pro 500-Sheet Feeder, \$399; LaserWriter Pro Envelope Feeder, \$399.



## Photoshop

From previous page

ble or invisible or to make them editable or locked; Shift-clicking can produce any combination thereof. A pop-up menu lets you create, name, delete and save channels. New channels appear in the palette with their associated Command-key shortcuts.

You can designate a color that will be used to display mask channels when they are overlaid on the image and choose to have the color overlaid on the masked area or over the selected area. Alpha channels also appear by name on the Load Selection pop-up menu, so you can quickly and easily load selections from different channels.

The Pen tool has been moved to the Paths palette, along with tools for adding, deleting and selecting points on a path as in Adobe Illustrator. Paths can take up much less disk space and memory than alpha channels, particularly when the selection outline is simple, and some selections are easier to draw with the Pen than with the Lasso. You can freely convert Paths to Selections to Channels using the Make Path, Make Selection, Load Selection and Save Selection commands. This is particularly useful with complex projects involving multiple image sources.

In addition to the Color Picker, you can now use the Colors palette to

define colors and save sets of colors as color libraries. Photoshop includes predefined color libraries for Pantone coated and uncoated stock; Pantone process color simulations; and Toyo, Focoltone and TruMatch ink sets. You can work with colors in RGB (red, green, blue), HSB (hue, saturation, brightness), CMYK (cyan, magenta, yellow, black) or CIE Lab color models and use any of the painting tools to experiment in a color-mixing area. The gamut alarm from the Color Picker is present in the Colors palette, too.

You can now preview the results of adjustments made using the Curves, Hue and Saturation, and Color Balance controls, which makes them both faster and easier to use. You can use the Levels, Contrast and Brightness controls interactively on the whole screen, as in previous versions, or you can use a preview, which takes a little longer but affects only the selected area.

**Variations.** One further goodie lurks under the Adjust submenu: the Variations command. This lets you adjust exposure and color balance for shadows, midtones and highlights by choosing a variation of the image from a ring-around display, a kind of miniature version of Electronics for Imaging Inc.'s MultiChoice tool in Cachet. For reference, the original image and the current pick, which shows the cumulative effect of all the choices you've made, are displayed above the ring-around. You can set the degree of coarseness of the steps between the different versions: Fine is almost imperceptible, while Coarse is very obvious. A clipping alarm highlights clipped pixels. For the *pièce de résistance*, you can save all the changes you've applied to an image as a script, which you then can load and apply to other images, providing a fairly powerful batch-processing capability.

**Interface.** Some useful enhancements have been made to the user interface. The screen can quickly become cluttered with floating palettes, so each palette can be collapsed or expanded via a zoom box: Pop-up menus remain available when the palette is collapsed. Pressing the Tab key hides all floating palettes, including the Toolbox.

A new Preferences option, Function Keys, allows you to assign the function keys on the extended keyboard, with or without the Shift key, to any menu command, including those that show and hide the palettes. You can save and load different function key sets.

**Revving up.** The new features add up to increased flexibility and productivity, but important changes have taken place under the



As in Cachet's MultiChoice window, Photoshop's Variations window displays exposure and color-balance adjustment options, and it lets you choose between them with a click.

hood, too. The most immediately obvious change is in screen redrawing, which is now done in tiles, rather than line by line. This makes zooming in on details much faster, particularly when working with high-resolution images.

Slightly less obvious is an entirely rewritten virtual-memory scheme. It's still highly desirable to have enough RAM to hold the entire image plus the scratch and undo files, but now there's much less of a penalty for using virtual rather than real RAM — performance becomes leisurely instead of glacial. The new virtual-memory scheme also lets you designate a second scratch disk for Photoshop to use in the event that the first one fills up.

**CIE space.** Photoshop now uses the CIE Lab color space for all its internal color values. The Lab model is particularly useful when you need to edit color and luminance values separately. And since it's a device-independent color model, it should, in theory, result in identical color on different printers and monitors, as long as they've been properly calibrated, and within the limits of the different devices' color gamuts. It's the preferred color model for use when printing to PostScript Level 2 devices: When you send Lab data to a Level 2 printer, it's converted to the printer's native color space within the printer itself, using the printer's own color-rendering dictionary.

The new version claims to support Apple's ColorSync color-management extension, but as yet we haven't been able to evaluate ColorSync support because of a dearth of ColorSync profiles.

**Booster rockets.** The benefits of another major change will take a little longer to appear. With Version 2.5, the architecture of the program has been opened up. Previously, vendors who wanted to accelerate

Photoshop functions using digital signal processor (DSP) boards were constrained to going through the Filter interface. With Version 2.5, many features that do not fall under the Filters heading can also be accelerated. As a result, functions such as rotating, resizing and RGB-to-CMYK color transformations are now fair game to third-party DSP vendors — Adobe has announced an "Adobe Charged" certification that will guarantee 100 percent compatibility between conforming third-party accelerated routines and native Photoshop functions.

Several third-party acceleration vendors, including SuperMac Technology Inc., Storm Technology Inc., DayStar Digital Inc., Newer Technologies Inc. and Spectral Innovations Inc., have announced new or upgraded DSP-based acceleration for specific functions in Photoshop 2.5. None of these shipped in time for evaluation in this review.

**A separate peace.** The color-separation algorithms have been rewritten to great effect. The new version does a much better job of handling highly saturated reds, and the problem of too much magenta in the blues also seems to have been cured. We haven't yet had a chance to do exhaustive evaluations of the new separation algorithms, but the results we've obtained so far indicate that they're much improved over the old ones.

**A little slower.** Photoshop 2.5 isn't perfect. Because the new version is much larger, it does more swapping of code segments in and out of memory. This occasionally leads to slightly sluggish behavior, particularly on slower machines. On a IIx, we've noticed a slight but perceptible delay between selecting a tool and having that tool available for use, and menu commands invoked by Command-key combi-

nations aren't quite as snappy as they were in Version 2.0.1. The program takes much longer to launch than its predecessor — exactly how long depends on how many third-party filters you have loaded — and files saved in Photoshop 2.5 format take a little longer to open than Photoshop 2.0 files. Tools used with large soft-edged brush settings are slow enough to be quite difficult to use. Given the overall improvements, though, these are fairly minor complaints.

Upgrades from Photoshop 2.0.x are \$129. An optional CD-ROM version, available only as an upgrade, is \$199. In addition to the Photoshop 2.5 upgrade, the disc contains many user tips, demo versions of third-party filters and tutorial files.

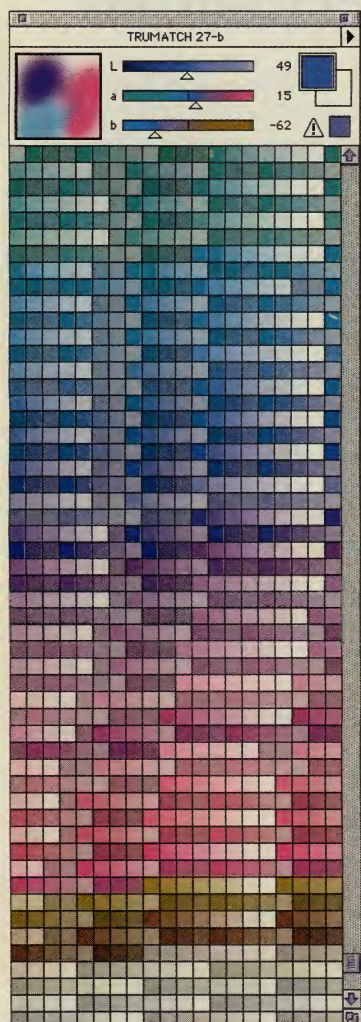
### There's a gnat in my soup.

Any program as large and complex as this is almost certain to have some bugs. We haven't found any obvious reproducible problems, but we did experience a handful of random crashes. A few Quadra users on CompuServe's Adobe Forum have reported occasional spurious out-of-memory messages, and some IIsi users have reported unusually slow performance. We've found that preview icons don't always show up, even after we've seen a message informing us that the program is creating one.

Photoshop 2.5 seems backward-compatible with most third-party plug-ins: The only one we've had break so far is SuperMac's ThunderStorm Resize function.

**Conclusions.** We'd like to see these problems fixed as soon as possible, but none seems serious enough for anyone to hold off on upgrading; the many advantages of the new version more than outweigh the few minor difficulties we've encountered. Adobe probably could have gotten away with calling this Photoshop 3.0, and the fact that it didn't whets our appetite. Photoshop 2.5 won't make the Mac rival high-end color workstations, but it's quite a bit more than an incremental upgrade. For serious Photoshop users, it's a must-have.

Adobe Systems Inc. is at 1585 Charleston Road, Mountain View, Calif. 94039-7900. Phone (415) 961-4400; fax (415) 961-3769. □



Photoshop's Colors palette lets you edit, save, merge and load color libraries, including Pantone, Focoltone, Toyo and TruMatch colors, in addition to custom libraries.

### SYSTEM 7 COMPATIBILITY

#### Adobe Photoshop 2.5

Balloon help	No
TrueType	Yes
Publish and subscribe	Yes
Apple events	No
32-bit addressing*	Yes

\*According to vendor.



# See the future of client/server computing in three days.

**The Apple Enterprise Computing Conference**  
**April 5-7, 1993 • The San Francisco Hilton Hotel**

## CONFERENCE HIGHLIGHTS

- ▶ Learn about tools and technologies currently available for enterprise computing
- ▶ Hear new product announcements from Apple addressing client/server computing
- ▶ Get in-depth technical information and hands-on training
- ▶ Attend full day VITAL or DAL technical training sessions (optional, pre-conference)
- ▶ Learn how Fortune 100 companies are delivering integrated multi-vendor client/server solutions now
- ▶ Find out how to build cross-platform solutions Macintosh to Windows

## HANDS-ON TUTORIALS IN A CROSS-PLATFORM LAB

- At the AECC, you'll have the opportunity to use and evaluate tools and technologies from Apple and a variety of vendors in a hands-on lab environment. With networked Macintosh computers, DOS/Windows PCs, VAX™ and IBM mainframe servers, you'll get first hand experience. These sessions will cover:
- ▶ Graphical development tools for cross-platform applications
  - ▶ Remote database access
  - ▶ Client/server tools and other products in a unique interactive environment facilitated by product experts

## HEAR FROM INDUSTRY EXPERTS

- ▶ **Michael Spindler**, President and COO, **Apple Computer, Inc.**
- ▶ **Jim Manzi**, President and CEO, **Lotus Development Corporation**
- ▶ **Jerry Baker**, Senior Vice President Product Line Divisions, **Oracle Corporation**
- ▶ **Joe Guglielmi**, Chairman and CEO, **Taligent, Inc.**
- ▶ **Richard Guarino**, Assistant General Manager Strategic Development, **IBM Corporation**
- ▶ **Stewart Alsop**, Editor-in-Chief, **InfoWorld**

**Give us three days.** We'll give you insights on building the client/server network of tomorrow using the equipment you have today. At the Apple Enterprise Computing Conference, you'll learn about the tools and technologies currently available to solve enterprise computing problems—as well as new products being developed for your future needs. So call the number below. And get ready to see into your company's future without abandoning its past.

- ▶ **Cost is \$795 per person**  
**Register 4 people from the same**  
**company and the 5th is free.**

- ▶ **All registrants will receive a FREE**  
**copy of FileMaker Pro compliments**  
**of Claris Corporation.**

To register, call **1-800-841-2322**

Apple 



## LaserWriter

From Page 45

tion also is built in. The printers are based on the 8-page-per-minute Canon EX marking engine, a true 600-dpi printer. As we reported when we evaluated the LaserJet 4M (see MacWEEK, Oct. 26, 1992), the output from this engine is stunning. At 600 dpi, type is crisp, even at small point sizes, and solid fills and blacks print much more evenly and richer than pseudo 600-dpi printers we have looked at.

The 600 and 630 each ship with 8 Mbytes of RAM, and the printers' memory can be expanded to 32 Mbytes. The 8-Mbyte configuration allows the printers to take advantage of Apple's proprietary FinePrint type-smoothing and PhotoGrade image-enhancement technologies, both of which are built into the printers' firmware.

A 250-sheet letter-size cassette and a 100-sheet multipurpose tray come with the printers. An envelope feeder and a second 500-sheet feeder also are available as options.

We were disappointed to find that the LaserWriter Pros lack a straight-through paper path, which is convenient for special paper types, envelopes and labels.

**Setup.** As has been the case with most Apple printers, the LaserWriter Pros' hardware and software setup is generally very good. Apple includes a well-designed caddy for lifting the 39-pound printer out of its box. The toner cartridge is spill-proof and installs easily.

The documentation for setup is clear and concise, in most cases definitely up to Apple standards.

Apple includes a set of Mac TrueType fonts on disk with the LaserWriter Pro 600 and 630. These fonts are supplied in addition to the set of 35 LaserWriter-standard fonts (Avant Garde, Bookman, Courier, Helvetica, Helvetica Narrow, New Century Schoolbook, Palatino, Symbol, Times, Zapf Chancery and Zapf Dingbats) that are available in the printers' ROM.

All of the fonts are installed with the LaserWriter 7.2 driver that ships with the printers, but Apple's Installer provides no mechanism to customize the installation process. All of the fonts are installed, whether you want them or not. The documentation doesn't mention this, and it also fails to discuss a method for installing the driver and fonts manually.

On the positive side, Apple

includes a DOS disk for installing the printer software under Microsoft Windows. The documentation includes installation information and troubleshooting tips for Windows. We were able to install and use the LaserWriter Pro software without incident on our 386 machine from Northgate Computer Systems Inc.

**Doing the print thing.** The LaserWriter 7.2 driver offers slight variations from previous Apple print drivers, but it is not the long-awaited Level 2 version. That driver is now scheduled to ship next month.

The main difference from earlier Apple drivers is evident when you use the Chooser to select a

printer. A Setup button has been added that queries the selected LaserWriter Pro and installs the proper paper-handling options into the Print dialog box. You have to perform this operation only when you first set the printer up or when you add an optional item such as the envelope attachment.

## BENCHMARKS

## Apple LaserWriter Pro series\*

(Times in minutes; lower is better)

## Font-download document (3 pages)



## Mixed-font document (12 pages)



## Complex long document (24 pages)



The downloadable-font and mixed-font tests were run from Microsoft Word 5.0 and look at printer memory management, font rendering and engine speed. The complex long document test was run from Aldus PageMaker 4.2 and tests acquisition and processing of large amounts of data and general performance.

\* The LaserWriter Pro 600 and 630 use the same 68030 processor; in our tests, the print times for the 600 and 630 were statistically identical. The LaserWriter Pro 600 and 630 and LaserJet 4M can print at both 300 and 600 dpi; testing on the LaserJet 4M was performed only at 600-dpi resolution. The LaserWriter IIg and RealTech Laser are 300-dpi printers.

## Macintosh Consultants Network



## 10th International Consultants Conference

April 29 - May 2, 1993  
Peachtree City, Georgia

For information contact the  
Macintosh Consultants Network.

1-800-729-4MCN

## "10"

Conference 10 signifies the MCN's COMMITMENT TO EXCELLENCE in Micro-computer Consulting. • The

## VISION

curriculum provides in-depth product reviews, face-to-face interaction with the people responsible for developing and

## RESOURCES

supporting micro-computer products, and business-oriented presentations from experienced consultants. • "10" is

## TECHNOLOGY

for Consultants, Macintosh Trade Press, Corporate Computing Managers, Representatives from the largest

## INFORMATION

hardware and software companies in the world to start-up companies bringing new technologies and solutions

## PARTNERSHIPS

to the marketplace. • "10" brings consultants face-to-face with hardware and software developers, product

## COMMUNICATIONS

managers, and other consultants in an environment to promote excellence in micro-computer consulting.



PARTICIPATING COMPANIES INCLUDE





The settings for the printer are stored in the LaserWriter Preferences file in the System folder.

When you print from within an application, the Print dialog box reflects your printer's capabilities. You can choose which source tray to use for the first page and have the subsequent pages print from another paper source. This feature is not as expansive as the multiple-tray selector found in printers such as Dataproducts Corp.'s LZR series, but it works satisfactorily.

The other addition to the Print dialog is the capability to select the

Clean 600-dpi output, PhotoGrade support and versatile paper-handling features make the LaserWriter Pros good buys.

print resolution and, if 300-dpi output is selected, you also can select to turn on FinePrint and PhotoGrade.

**Reading the FinePrint.** As mentioned earlier, the quality of output from the 600 and 630 is very good. Even when compared with printers that use enhanced 300-dpi engines — such as Xante Corp.'s Accel-a-Writer 9000 or LaserMaster Corp.'s Unity 1000 — the Apple printers shine.

When we compared 600-dpi output from a LaserWriter Pro 630 and a LaserJet 4M, we felt that the results were comparable, with HP having a very slight advantage in type readability. This is a result of HP's Resolution Enhancement Technology (RET), which smooths the jaggies in printed lines. Apple's FinePrint performs many of the same types of functions as RET, but it is not available at 600 dpi.

**Giving PhotoGrade an A.** PhotoGrade, Apple's gray-scale enhancement technology, also can be used only at 300 dpi, but the results you can achieve with PhotoGrade make it worthwhile to use. We printed a number of gray-scale images and PostScript files with pattern fills and found that they looked better when printed at 300 dpi with PhotoGrade on than when printed at 600 dpi.

The memory required to process an image with PhotoGrade is substantial, which is the most apparent reason for PhotoGrade not being available at the higher resolution.

As a result, you'll have to use 300 dpi if you want the best image reproduction you can coax out of your printer.

You can use FinePrint to smooth type at the lower resolution; it won't enhance 300-dpi type well enough for you to mistake it for 600-dpi output, but it is markedly better than straight 300-dpi type (see print samples at right).

**Performance.** Unlike the LaserJet 4M, which uses Intel Corp.'s 20-MHz i80960 RISC chip, the LaserWriter Pro series is driven by a 25-MHz 68030 CISC (complex instruction set computing) processor. Apple has used the 680x0 series in its PostScript printers since the original LaserWriter and obviously feels no need to move to RISC at this time, choosing instead to use custom application-specific integrated circuits and I/O processors to help optimize performance.

Using our standard benchmark files, we found that the lack of a RISC chip results in a small performance penalty when compared with the LaserJet 4M, but the results were generally insignificant.

The biggest discrepancy between the LaserWriter Pro 630 and the LaserJet 4M was a two-minute difference in our complex, 24-page Aldus PageMaker document. In other tests the time differences were much closer, but the LaserWriter Pro 630 was almost always slower than the printers we compared it with (see benchmarks, previous page).

When we tested the LaserWriter Pro 600 against the 630, the time differences were negligible, although the 600 was generally a second or two faster than the 630 in all tests. Testing the performance of 300 dpi vs. 600 dpi also turned up generally minor speed improvements at the lower resolution, although the PageMaker file printed more than one minute faster at 300 dpi.

We were unable to test the LaserWriter Pro 630's Ethernet connection; we hope to test it for upcoming reviews of other network printers and will report the results when they are available.

**Conclusions.** In general, Apple has yet again been able to produce price- and feature-competitive PostScript laser printers in a timely fashion. While the LaserWriter Pro 600 and 630 might not be the fastest in their class, their clean 600-dpi output, PhotoGrade support and versatile paper-handling features make them very good buys.

We would like to see a way to incorporate at least some of PhotoGrade's functionality into 600-dpi output, however.

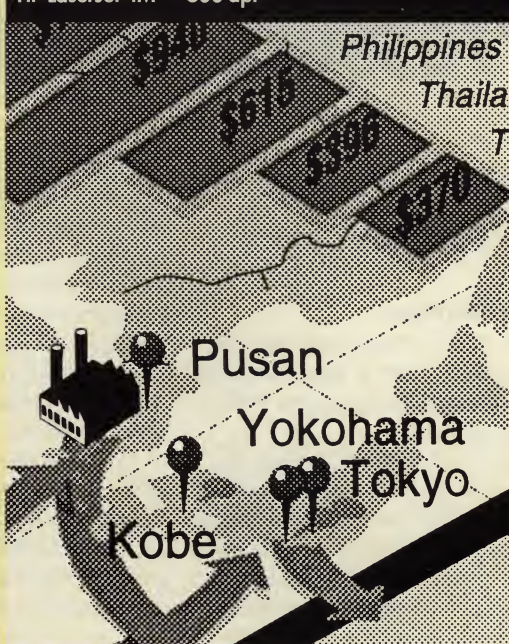
The software installation prob-

## Sampling the LaserWriter Pro 600, 630

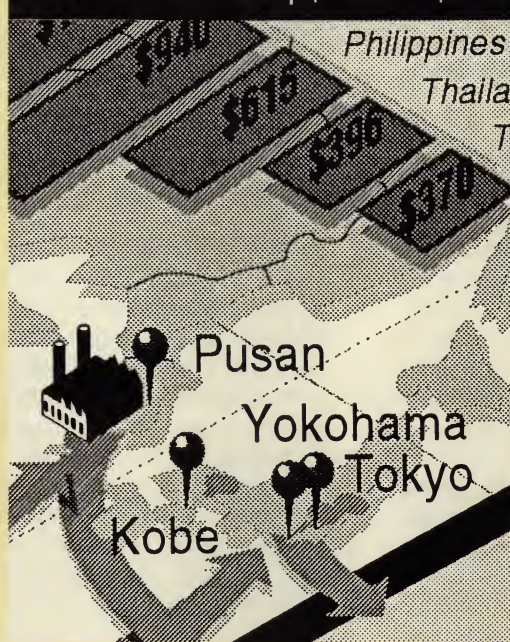
LaserWriter Pro 630 — 600 dpi



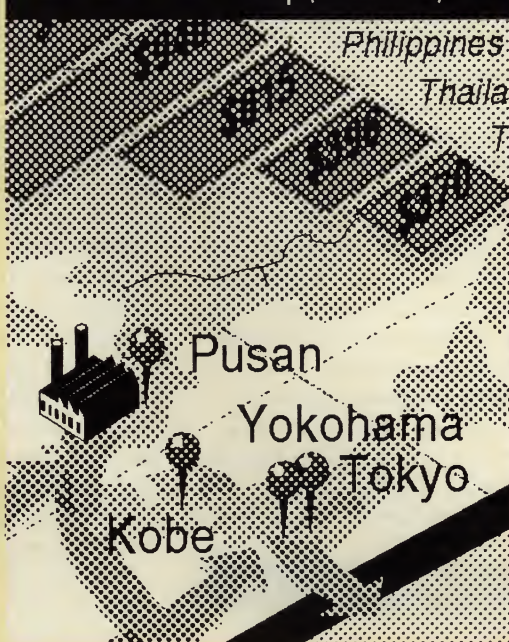
HP LaserJet 4M — 600 dpi



LaserWriter Pro 630 — 300 dpi (FP and PG on)



LaserWriter Pro 630 — 300 dpi (FP and PG off)



Three of the print samples shown here are from a LaserWriter Pro 630: one at 600 dpi, one at 300 dpi with FinePrint and PhotoGrade on, and one at 300 dpi with no enhancement (used as a reference image). The fourth sample is from a Hewlett-Packard LaserJet 4M at 600 dpi, with Resolution Enhancement Technology (RET) turned on. The samples, printed from Adobe Illustrator, have been blown up 188 percent. The 600-dpi LaserWriter and LaserJet 4M samples show the crisp type, decent fills and rich blacks found in the Canon U.S.A. EX engine. HP's type is slightly cleaner,

thanks to RET, but both printers' output is very good. The sample with FinePrint and PhotoGrade enabled shows off PhotoGrade's excellent ability to enhance gray-scale images and fills. The dot patterns found in the PhotoGrade-processed sample are tighter than any of the other printed images, even though the LaserWriter is printing at only 300 dpi. Also notice that although FinePrint improves the look of 300-dpi type, it doesn't bring it quite to the level of true 600-dpi output. Choosing to print at 600 dpi or an enhanced 300 dpi will be based largely on the type of document you are printing.

lems should be cleared up, and we would like to see Apple include PostScript Printer Description (PPD) files for PageMaker and Adobe Illustrator and Quark Inc. PDF files for QuarkXPress. Many printer vendors routinely include these important files with their products, and Apple should do the same. (PPD files for all of the new Apple printers are available on AppleLink and CompuServe in the Adobe forum.) The only other

limitation we see is the lack of a straight-through paper path.

Choosing between the 600 and the 630 should be fairly straightforward. Ethernet support is important, and many people will purchase the 630 for that reason alone, but we think more-savvy users will buy the 630 solely for its SCSI port. Service bureaus and users with heavy investments in fonts generally add a hard disk to their printer to improve throughput. This was one

area where HP got chastised with the LaserJet 4M, and Apple has at least made one model available that supports this feature.

The LaserWriter Pro 600, priced \$430 less than the 630, is a good choice for the budget-minded user who wants 600-dpi output at a lower price point. Given that the performance of the 600 is comparable to that of the 630, you are losing only Ethernet and SCSI support. □



# Wacom's state of the ArtZ: Pressure sensitivity with ADB

*Smooth tablet, pen  
for ballpoint price*

By Philip Bishop

Wacom Technology Corp. has introduced a new pressure-sensitive digitizing tablet to compete with its older models.

Unlike earlier serial devices, the 6-by-8-inch ArtZ connects to the Mac's Apple Desktop Bus but offers better performance, less hassle and more compatibility with most Mac setups than Wacom's other tablets. The tablet also is honed to whittle the price of pressure-sensitive artwork downward: It has a list price of \$449 (and can be purchased on the street for about \$325).

Many graphics applications have added support for pressure-sensitive tablets, including Adobe Photoshop, Aldus FreeHand, Deneba Software's Canvas, and Fractal Design Corp.'s Painter and Sketcher. Pressure sensitivity allows graphics users to create more-natural-looking pen and brush strokes and vary the width and other characteristics of brushes without changing tools.

Wacom said that the ArtZ operates at speeds of about 100 data points per second, which is about the same as the company's original serial tablets. At lower speeds, input devices

can suffer a marked drop-off in performance — smoothly curved lines become segmented, for example.

The ArtZ draws its power from its ADB connection. Unlike serial connections, which operate at fixed speeds, ADB performance is dependent on CPU speed, so the faster your CPU the better the ArtZ should perform.

We tested the ArtZ on a Quadra 900 and a Mac LC and, remarkably, didn't notice any degradation in the tablet's performance on the slower machine. Many of the programs that take advantage of the Wacom, however, work much better on higher-end Macs. While your brush strokes may be just as smooth on an LC, waiting several seconds for each stroke to appear, as is possible with a program such as Painter, can be stultifying.

**ADB advantage.** The key advantages of an ADB tablet are that it is as easy to install as plugging in a mouse or a keyboard, plus you free up a serial port. In fact, you can plug your ArtZ directly into keyboards with two ADB ports.

The tablet is about the size of a mouse pad. The ArtZ currently lacks a second ADB connector to let you daisy-chain ADB devices, so it has to go at the end of the line. Wacom said it will be supplying a cable with two ADB connectors in future shipments of the ArtZ.

The tablet, which is less than a half-inch thick, weighs only 1.8 pounds, which makes it ideal for work on your lap. The 6-foot ADB cable allows plenty of freedom of movement.

The ArtZ has a transparent plastic cover for holding artwork you want to trace. The only other notable feature on the unit is a small status light in the upper right-hand corner and a small button on the front edge of ArtZ for starting up your Mac.

**Sharpened pen.** The ArtZ ships with a new Wacom pen — the UP-201 — but a puck is not available. Replacement pens cost \$125. The UP-201 weighs 8 grams (less than a third of an ounce). Not only is it lighter than Wacom's earlier pen, it's thinner too.

The UP-201 is the first Wacom pen to offer a barrel switch, something the company's competitors — CalComp Inc. and Kurta Inc. — have long offered. This can be assigned various functions, such as double-clicking or launch-

ing a macro, through the Wacom control panel.

Wacom's pens are remarkably light because they don't require batteries, and the UP-201 is no exception. Every 20 microseconds, the tablet determines the pen's position and the degree of pressure applied. The software in turn translates this data into coordinate position or line thickness, color hues, brush sizes and other characteristics. Other vendors' pens are powered by batteries, which makes them heavier and requires periodic battery changes.

The ArtZ tablet, in combination with the UP-201 pen, is a joy to use and performed flawlessly in tests using Painter, Sketcher, FreeHand and Photoshop.

It performed almost as well for navigation in applications as it did when used for graphic arts tasks. Wacom's new tablet is an improvement of a peripheral we thought was very good already.

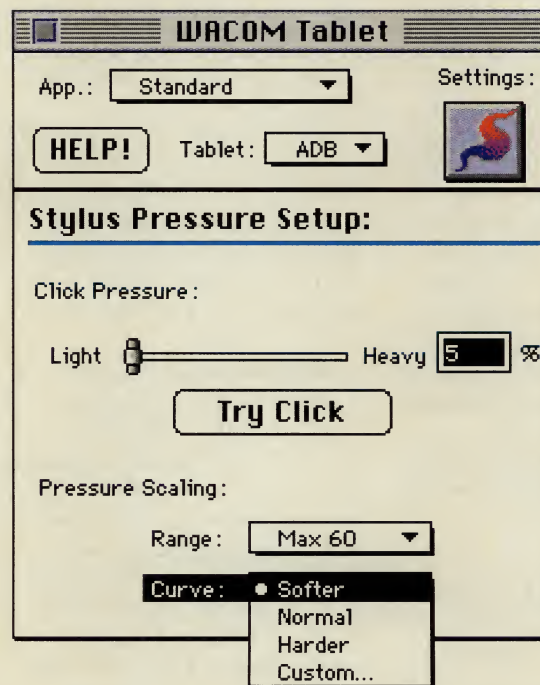
**New software.** In the previous version of Wacom's driver software, if you wanted to double-click on an item you had to tap the exact same pixel twice. The new driver software, which debuts with the ArtZ, lets you set up a "hot spot" of up to 15 pixels wide. While this may be helpful to beginners, we found that this feature, called Click Assist, actually slows the pen's responsiveness.

You're better off configuring the barrel switch as a double-click or configuring a function key for this command. The new driver software lets you customize pressure settings, apply special tablet-to-screen scalings and launch macros with the touch of the pen; it works only with System 7, however.

The ArtZ supports 120 levels of pressure, double the sensitivity of Wacom's other tablets. More levels of pressure means you have greater control over the weight of a line or the amount of color applied.

Aside from Painter and Sketcher, Wacom couldn't identify other programs that support the new range of pressures, although we expect such support won't be long in coming.

The Pressure Scaling Curve, possibly the most impressive innovation in the new software, lets you customize how pressure is reported to an application. By rearranging seven sliders in the Custom Pressure window, you can create a pressure curve tailored to the way you use the pen. For example, you could adjust the sliders so



The Pressure Scaling Curve lets you customize how pressure is reported to applications. For example, the Softer setting makes the stylus more sensitive, while Harder makes the stylus less sensitive.

that the pen doesn't register as much pressure when you first begin your stroke, thus avoiding the beading at the beginning of a line, for example, when using watercolor tools in Painter. Some applications have their own pen adjustments, which you can use to further refine control.

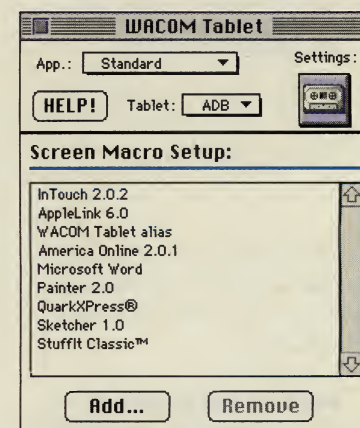
The control panel uses several panes: Stylus, Pressure, Scaling and Screen Macros. Each has a pop-up menu, called App., which lets you provide custom settings for a particular application.

Screen Macros are Wacom's answer to CalComp and Kurta, which provide buttons on their tablets that can be configured to perform a variety of actions, such as launching an application or choosing a menu item.

Screen Macros are functionally the same as these buttons, but with the ArtZ, actions are selected by choosing an item from a list you can display on the screen. While this method has great virtue, to display the activities list, you must assign the barrel switch to this function, precluding it from use for anything else. Optionally, you could program the barrel switch to double-click, mimic a Shift or Option key, execute a keystroke, or launch a macro created by CE Software Inc.'s QuickKeys or Affinity Microsystems Inc.'s Tempo Custom (which is bundled with the tablet).

In most respects, Screen Macros are preferable to macro buttons on the tablet, although adding them individually, rather than in groups, is tedious. We think Wacom should add a second button to the pen, as with Kurta's offering, or at least offer a hot key to pop up the macro list.

The ArtZ and earlier Wacom hardware and software are mutually incompatible, although the ArtZ pen will work with Wacom's PL-100 desktop LCD tablet. The company said a backward-compatible version of the new driver for all other Wacom tablets and System 6 should be available by the end of April.



You can launch QuickKeys or Tempo Custom macros from ArtZ software and make sets of macros for applications.

**Conclusions.** Pressure-sensitive digitizing tablets with cordless pens are no longer limited to Wacom, but the company's new ArtZ — with ADB convenience, fast performance, the sleekest of pens, and considerably enhanced and customizable software — is another stroke against the competition. Some parts of the new software could be easier to use, but this gripe is easily put in perspective by the ArtZ's low price. If you need a larger tablet, you'll have to look elsewhere, but Wacom's ArtZ sets a new standard for digitizing tablets.

Wacom Technology Corp. is at 501 Columbia Shores Blvd., Suite 300, Vancouver, Wash. 98661. Phone (206) 750-8882; fax (206) 750-8924. □

## score card

### ArtZ

Wacom Technology Corp.

List price: \$449

Overall value ♦♦♦♦

Wacom is renowned for its high-quality, serial-based digitizing tablets. The ArtZ attaches to the Apple Desktop Bus and has performance similar to or better than the serial devices. It features a highly responsive, extremely light pen and new driver software (which has a few rough edges) that lets you customize pressure settings, apply special tablet-to-screen scalings and launch macros with the touch of the pen. As usual, Wacom continues to set the standard in this market.

Performance ♦♦♦♦♦

Features ♦♦♦♦♦

Configuration ♦♦♦♦♦

Compatibility ♦♦♦♦♦

Documentation/support ♦♦♦♦♦

## SYSTEM 7 COMPATIBILITY

### ArtZ

Balloon help	No
TrueType	n/a
Publish and subscribe	n/a
Apple events	Yes
32-bit addressing*	Yes

\*According to vendor.



# Attention all Macintosh professionals in:

Zimbabwe

England

Ivory Coast

Saudi Arabia

Luxembourg

Spain

Japan

Italy

France

Chile

Nigeria

Germany

Lithuania

Morocco

Switzerland

Around the World

# MacWEEK

Now you can get MacWEEK delivered via airmail —  
direct from the publisher — no matter where you are!

Subscriptions to MacWEEK are now available straight from the source\* — and you'll get them fast. Each information-packed issue will arrive within 5 to 7 days of the issue date. For just US\$300 a year, you'll get nonstop, up-to-the-minute Mac news from the only weekly news journal written expressly for Macintosh managers.

Whether you're in Timbuktu, East Croydon or Dar-es-Salaam, you'll find that a year's worth of MacWEEK can translate to huge savings for you and your company, on all your Mac-related purchases and business decisions. **Subscribe today.**

\*Subscriptions no longer available through MacVonk.

## MacWEEK SUBSCRIPTION ACCEPTANCE FORM

**YES**, please enter my one-year (44-issue) subscription to MacWEEK for US\$300.00, payable in U.S. funds. I understand that I am entitled to a full refund on all unmailed issues if I should choose to cancel my subscription.

### PLEASE CHOOSE ONE:

- ☐ Payment of US\$300.00 enclosed.  
☐ Charge my credit card.  
☐ Visa ☐ MasterCard ☐ American Express

Name

Account No.

Company

Expiration Date

Address

Signature

City Postal Code

**RETURN FORM TO:**  
MacWEEK Circulation — 5th Floor  
One Park Avenue • New York, NY 10016  
U.S.A.

Country

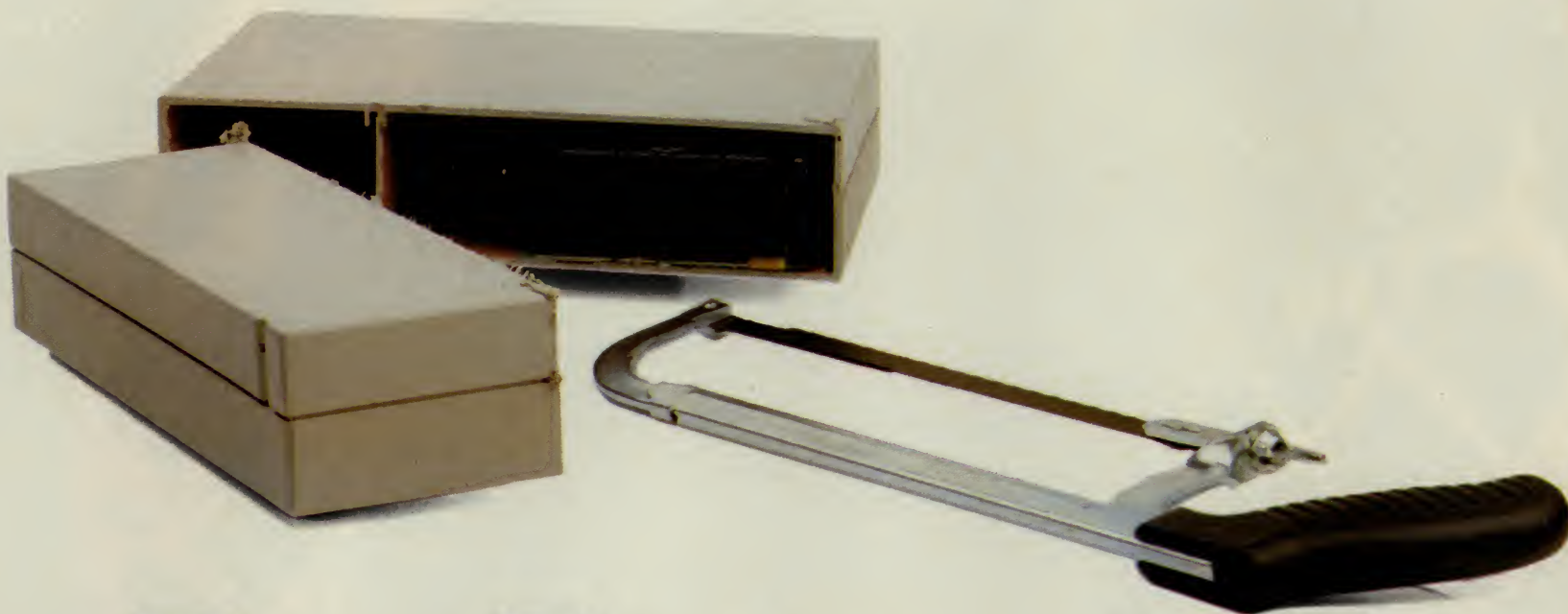
**OR YOU MAY FAX YOUR ORDER TO:**

**(212) 503-5335**

Please allow 4 to 6 weeks for delivery of first issue. No bank transfers accepted.



**105MB  
MODEL  
NOW AVAILABLE!**



# Try Removing 105 Megabytes



Available now, the DataPak 105 offers higher performance than any other removable media device available today.



High performance zero footprint SyQuest drives are available in 45 or 88MB. The 88MB also reads and writes 45 cartridges.



High capacity single or dual drives are ideal for Mac IIcx or IIcx. Like all DataPak drives, these include a DataCart Lifetime Warranty.

## TRANSPORT YOUR DATA WITH EASE

Go ahead, it's awesomely simple. Remarkably reliable. And it's from MASS Microsystems, first to bring you SyQuest™ technology for your Macintosh. We know your standards are high. Especially when it comes to transporting and protecting your most valuable data. But we also know you're a reasonable person. You unequivocally require all the storage in the world, perpetual portability, lightning fast speed, resounding reliability and a lifetime warranty. *And we wouldn't dream of giving you anything less.*

We're proud that our DataPak 45MB and 88MB removables have won more MacUser and MacWorld awards than anyone else in the industry! Needless to say, we expect the same success with our 105MB models.

And we like being first. With SyQuest for the Mac. With Active Termination to reduce SCSI-related problems. With Next Day Repair/Exchange. And we're the only company to give you a DataCart Lifetime Warranty. It doesn't get any better than that.

Unless we talk about saving you time, money and a worry or two. The software on our pre-formatted DataCart™ cartridges makes volume partitioning a snap. Password protection keeps your data safe and gives you a chance to be creative. We include a free DataCart cartridge to save you money. And because we're nice guys.

Go ahead, be relentless in your quest for remarkably reliable, risk-free removables. We're sure you'll join the leagues of loyal

Mac users worldwide who trust MASS Microsystems. For our leading edge technology. Our uncompromising quality. And those really nice guys on our world class technical support team. Call us today at 1-800-522-7979.



Maybe it's time to take it with you.



810 West Maude Avenue  
Sunnyvale, CA 94086  
1-800-522-7979



# PRODUCT WATCH

- Buying info
- Expert advice



## UPS keeps Macs steady through ups and downs

Backup power supplies can save your Macs and data from the ravages of power disasters.

By Bob Weibel

Some strange things were happening to the new Macintosh IIsi at Architectural Reproduction in Portland, Ore. Occasionally, a drawing file would be saved and then be scrambled when opened again. On top of that, the Mac would automatically reset itself once in a while, dumping whatever work hadn't been saved. The problem? Power.

"We have a lot of problems with commercial power in this industrial area," said Monique Dolbow, office manager for the company. "The power lines are very old, and we have a lot of power fluctuations."

The installation of a \$299 AccuPower Model 20 uninterruptible power supply (UPS) from Liebert Corp. put an end to this nightmare.

Now, when the lights start flickering, or go out altogether, the Mac IIsi, monitor and Personal LaserWriter plugged into the company's AccuPower Model 20 keep right on ticking for up to 15 minutes, usually

enough time to ride out the trouble. "We never have to think about the UPS or the power problems, which is good sign," Dolbow said.

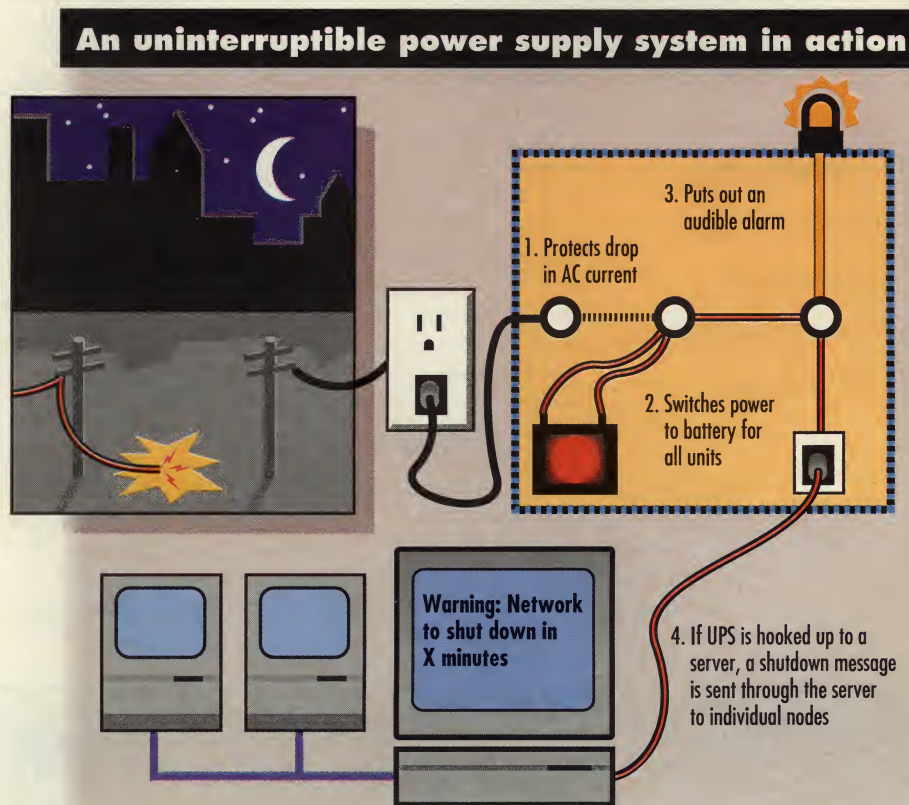
The AccuPower Model 20 is classified as an off-line (or standby) UPS, which is the most economical (see glossary, next page).

### A plethora of products.

According to experts, of the 100 or so UPS vendors, Liebert is one of the largest with a line of UPS products designed to serve a variety of systems, including desktops and mainframes. Smaller vendors are competing in the UPS business with both low prices and product innovation.

In most cases, vendors prefer that customers return the UPS for factory installation. However, the new LanGarde UPS models from EFI Electronics Corp. are the first to get a UL (Underwriters Laboratories Inc.) rating for safe and easy battery replacement. UL tests and certifies products for consumer safety.

Sam Morgan, principal of The Morgan Agency, an advertising and



NEVIN BERGER

marketing company in Salt Lake City, is currently installing EFI LanGarde 600 UPSes for his six Macs and two laser printers.

"We definitely like the ease of battery replacement," Morgan said. "We've had good experience with EFI's surge protection products." He said he also likes EFI's "Triple Crown" warranty, which covers the UPS and all connected equipment

for lightning, water damage and other hazards.

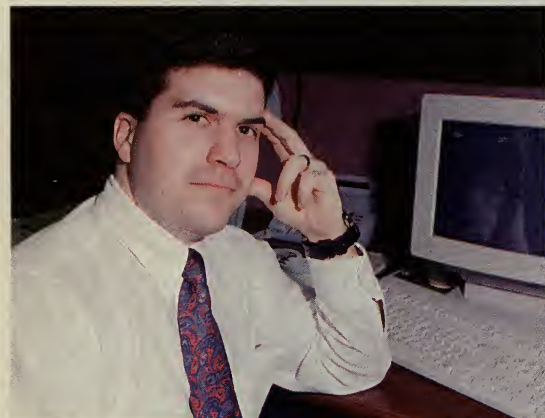
The LanGarde UPS is classified as line-interactive (see glossary, next page), generally more expensive but more capable than standby UPSes.

**Determining how much UPS you need.** Larger-capacity UPS systems have larger batteries and  
*See UPS, next page*

## Network power backup at Northern Telecom: An electronic safety net

The data on your Macintosh LAN is probably worth several times the cost of your Mac servers and workstations.

When power goes down, open files on servers and workstations aren't properly updated, resulting in lost information and garbled files that are costly to repair. Plus, your business halts, costing up to thousands of dollars a minute.



STEPHEN HOMER/BLACK STAR

Themis Tzamaris, office automation specialist for Northern Telecom, uses UPS systems to keep his company's network up when the lights go down.

"Our Mac network is quite large, and we don't want any unscheduled downtime," said Themis Tzamaris, office automation specialist for Northern Telecom in St. Laurent, Quebec. According to Tzamaris, placing uninterruptible power supply (UPS) systems on the company's Mac and Novell Inc. servers was only a partial protection.

"In addition to servers, all our network hubs and concentrators also have UPSes," he said. "Some workstations used for critical development work have UPS backup."

Tzamaris, along with the Local Networks team, has specified UPS power protection for all servers. Each Mac and Novell server in his division is set up with American Power Conversion Corp.'s Smart-UPS 1250VX standby UPS systems (see glossary, next page). "The 1250VXes will run our Mac servers for several hours before they shut down," Tzamaris said.

"They've ridden through all blackouts to date, which was our aim in using the larger units," he said. Hubs and development machines get 20 minutes of backup power from APC Smart-UPS 400 and 370ci units. Hubs and concentrators also get unlimited backup from emergency generators, according to Tzamaris.

When the power goes out in St. Laurent, Tzamaris and the Local Network team don't run around checking each AppleShare or Novell server to see how the batteries are

holding out. Instead, they count on APC's PowerChute software, an optional \$99 software package that can close down each server after a specified period of time.

Since each AppleShare server has a serial connection to its UPS, PowerChute detects the UPS status and, in turn, notifies AppleShare. Anyone logged onto the server is warned as the server approaches shutdown. Tzamaris specifies a specific shutdown time for each server. When the backup period has elapsed, PowerChute signals AppleShare to automatically save all files and close the server.

Currently, Tzamaris sees no need for remote maintenance or diagnostics of his division's UPS systems since most are centrally located.

To help managers of far-flung networks, several of the major UPS vendors, including American Power Conversion, have been meeting to discuss a standard approach to SNMP (Simple Network Management Protocol) that will allow network-management software to remotely manage UPS systems from different vendors.

Although that standard should be approved in late 1993, Tzamaris can upgrade his department's Smart-UPS systems with a \$799 SNMP adapter from American Power Conversion, which serves two Smart-UPS units. Managers can easily update that adapter's SNMP information when the UPS industry SNMP standard is finalized. — By Bob Weibel



## UPS

From previous page

heavier-duty circuitry. So, how powerful a UPS system should you buy?

Although the power consumption of most electronic devices is rated in watts, UPS systems are usually rated in volt-amperes (VA), which is the line voltage (typically 120 volts) multiplied by the amperes (electrical current) your Mac and peripherals draw. Here's one way to add up your power requirements:

► Examine the back of your computer, monitor and external peripherals and look for an amperage rating on the name plate, such as "2A."

► Multiply the amps (2 amps in this example) by the voltage (120

volts) to obtain the total VA you need (2 amps x 120 volts = 240 VA, for example).

If you know only the wattage of your equipment, you can easily convert watts to VA units. For computer power supplies, some of the rated commercial power isn't usable, so wattage takes into account a "power factor," typically about 0.7.

► To convert watts to VA, divide the wattage by 0.7. A 200-watt CPU, for example, would rate about 285 VA.

► To convert a UPS VA rating to watts, multiply the VA rating by 0.7.

**Less is more.** Experts we spoke with maintained that CPU power consumption is typically overrated. "In actuality, the power requirements can be as little as half the official rating," said Marc Vernon, a product manager for the Tripp Lite Division of Tripp Manufacturing Co. Inc. Buying a higher-rated UPS gives you longer battery support (holdup time), so the extra

capacity isn't necessarily wasted, Vernon said.

"With a 200-VA load and [a UPS rated] at 250 VA you might have a five-minute holdup, at 400 VA you'd probably have 10 to 15 minutes, and 600 VA could hold you for 35 to 45 minutes," he said.

Ultimately, it's more a question of when — and not if — you should buy a UPS system. Considering the lost time and money power interruptions can cause your business, it's comforting to know that UPS power protection has never been cheaper or more convenient. □

Ultimately, it's a question of when — and not if — you should buy a UPS system.

## Product Info

AMERICAN POWER CONVERSION CORP.

**Smart-UPS series:** \$499 to \$1,199;**Back-UPS series:** \$139 to \$799;**SNMP adapter:** \$799132 Fairgrounds Road,  
West Kingston, R.I. 02892

Phone (401) 789-5735

or (800) 800-4272;

fax (401) 789-3710

EFI ELECTRONICS CORP.

**LanGarde series:** \$499.95 to \$969.952415 South 2300 West,  
Salt Lake City, Utah 84119

Phone (801) 977-9009

or (800) 877-1174; fax (801) 977-0200

LIEBERT CORP.

**AccuPower series:** \$189 to \$1,099;**AccuPower Gold series:** \$1,249 to \$2,8991050 Dearborn Drive,  
Columbus, Ohio 43229  
Phone (614) 888-0246;  
fax (614) 841-6022TRIPPE MANUFACTURING CO. INC.,  
TRIPP LITE DIVISION**On-line UPS series:** \$699 to \$1,999;**standby UPS systems:** \$139 to \$3,295;**Omni series:** \$419 to \$1,595500 N. Orleans St.,  
Chicago, Ill. 60610

Phone (312) 329-1777;

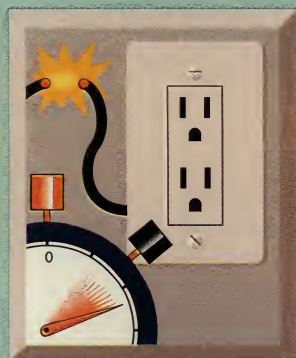
fax (312) 644-6505

## Some UPS essentials: A guide to different types of power backup

Here's a quick primer on the different types of technology behind UPS systems.

Uninterruptible power supply systems come in three essential flavors: on-line, standby (off-line) or line-interactive.

Although vendors sometimes hype the relative merits of each, the issues are pretty straightforward. They mainly concern the speed with which an uninterruptible power supply (UPS) switches to backup power, the "cleanness" of the power supplied and the way in which a UPS handles low-voltage (brownout) situations.



► **On-line:** An on-line UPS is truly uninterruptible

because it's always supplying power from its battery, which is continuously recharged. No switching is required, hence there's no waiting for the battery to kick in when the commercial power at your wall socket fails.

Also, since an on-line UPS completely isolates you from public power, you get smooth, controlled alternating current (sine-wave quality).

► **Standby (off-line):** As its name implies, standby UPS systems pass regular commercial power to your computer but switch to battery power within milliseconds of detecting a power drop.

That transfer typically takes about two to five milliseconds, and power is interrupted during the transfer time. After transfer, the battery supplies power until it runs dry or commercial power resumes. When power resumes, the standby UPS again provides you with commercial power while it automatically recharges its batteries.

► **Line-interactive:** Strictly defined, a line-interactive UPS is a standby UPS with an output transformer that regulates the voltage level going out to your computer.

That power regulation is particularly useful in brownout situations by boosting power without tapping into the batteries. Some vendors also claim that since a line-interactive UPS keeps power to the UPS DC/AC inverter circuit, there's less of a transfer time than with standby systems, and the power is of sine-wave quality.

► **On-line vs. standby:** On-line UPS systems provide the pure, sine-wave-power quality and uninterruptible performance that make them the "best" UPSes available. But they may be overkill for Macs and other personal computers.

The central question is whether the two- to five-millisecond transfer time of standby UPSes will cause your Macintosh and its peripherals to lose data.



"Transfer times for standby systems have gotten down to two to three milliseconds on average," Vernon said. "Testing has shown that practically every personal computer out there can withstand 10 to 20 milliseconds of power interruption."

Bruce Stonely, UPS product manager for UPS vendor EFI Electronics Corp., agreed that on-line may be overkill for Macs. "I've rarely seen a microcomputer have a problem with standby UPS transfer times," he said.

For Stonely, pure, sine-wave-quality voltage output is an emotional issue for some customers, but the "switched-mode" power supplies used on virtually all personal computers don't require that quality.

On the other hand, many mini- and main-frame computers and other devices with transformer-based linear power supplies *do* need the well-conditioned power provided by on-line UPS systems. On-line systems do run hotter and batteries wear out faster than standby or line-interactive.

► **Standby vs. line-interactive.** According to Tripp Lite's Vernon, "If you're in an area plagued by frequent brownouts, then a line-interactive system would be the best choice."

In a prolonged brownout, a standby system would switch to battery power and exhaust itself in 10 to 15 minutes, typically. EFI Electronics' Stonely said that EFI's line-interactive UPS systems will automatically boost commercial power that has dropped as low as 92 volts, without transferring to battery power. "That covers about 90 percent of the typical public utility-imposed brownouts," he said. — By Bob Weibel





Interactive Training  
Interactive Support  
Interactive Information

Ziff Institute's

# Interactive

# '93

Conference

## Interactive Technologies:

Multimedia Learning Systems  
Computer-Based Training  
On-Line Documentation  
Performance Support Tools  
Interactive Presentations  
Hypertext & Hypermedia Systems  
Distance Learning  
Remote Assistance  
Informational Kiosks  
Interactive Video

**May 3-6, 1993**  
**Anaheim Convention Center**  
**Anaheim, California**  
**Elliott Masie**  
**Conference Director**

**For a  
free  
brochure  
call:**

# 800-34-TRAIN

Presented by:

**Ziff** Institute

**Authoring**  
**'93**

**On-Line Doc**

**PERFORMANCE  
SUPPORT**



THE 11TH ANNUAL  
**CBT**  
DIRECTIONS  
CONFERENCE

**tdi**  
Technology  
Delivered  
Instruction  
Forums

Sponsors: **MacWEEK**

**HOWEEK**

**MacUser**



**Corporate  
Computing**

Outside the US call 315-354-4092





CHAD KUBO

MacInTouch RIC FORD

## Apple enabler lacks luster in 32-bit part

Apple's patch for its '32-bit-dirty' ROMs is not necessarily a plug-and-play product. Here are some problems, plus work-arounds to help the transition.

### BUGS & TIPS

**Special needs.** Apple recently released its 32-bit System Enabler, a home-grown alternative to Connectix Corp.'s MODE32 extension for giving the SE/30, IICx, IICx and some Mac II machines access to more than 8 Mbytes of memory (see MacWEEK, March 1).

This long-awaited Apple patcher has proven to be less transparent, however, than the third-party option.

System 7.1 is the first version of the operating system that supports enablers, so you cannot use the 32-bit System Enabler with System 7.0 or 7.0.1. MODE32 is compatible with all versions of System 7, according to Connectix, despite earlier concerns about potential conflicts with virtual memory under System 7.1.

Apple's enabler must be placed

directly into the System folder and not into the Extensions or Control Panels subfolder — a factor that has created some confusion.

The start-up sequence also may be confusing. The Mac models for which MODE32 and the 32-bit System Enabler were created must start up in 24-bit mode because their ROMs are not "32-bit-clean" and Apple has never offered a ROM upgrade.

MODE32 and the 32-bit System Enabler create an artificial restart that switches the machine to 32-bit mode, making for a stuttering start, in which the happy-Mac icon appears twice.

For owners of the original Mac II, the enabler's requirement for IICx ROMs is an issue. These ROMs (also used in the SE/30 and IICx) are available only as part of Apple's high-density floppy drive upgrade,

about \$400. MODE32, by contrast, supports the original Mac II ROMs.

This requirement is not mentioned in the enabler's skimpy documentation file, but Apple's Customer Assistance Center confirmed it.

Using 32-bit addressing on the Mac II also requires a PMMU (paged memory management unit), unless the machine has a 68030 accelerator installed.

**Bugs, debuggers.** The 32-bit System Enabler, like other enablers, reportedly suffers from an operating system bug under System 7.1 that can cause crashes at unpredictable times.

Connectix has released a free extension, Enabler Patch, that repairs the bug. The extension should be installed on any Mac that uses an enabler, until Apple fixes the problem in a future version of the operating system. (On ZiffNet/Mac, Connectix's Enabler Patch is file ENAPAT.SEA in Library 3 at location ZMC:DOWNTECH.)

This bug affects Adobe Type Manager, among other programs. Without the Connectix patch, ATM 2.x or 3.0 will freeze during start-up with the 32-bit System Enabler.

Suitcase, the popular utility from Fifth Generation Systems Inc., also has problems with enablers. Suitcase II 2.1.3 will address the issue.

Several people have reported compatibility problems between the 32-bit System Enabler and programming debuggers, including Apple's Macsbug. These problems do not occur with MODE32.

Electronic notes from Apple that accompany the 32-bit System Enabler mention a problem with using balloon help and the color-picker dialog at the same time, plus an incompatibility with SuperClock 3.9.

Lastly, there may be a problem with the 32-bit System Enabler's start-up process, in which hard disks are not unmounted properly during the switch from 24-bit to 32-bit mode. This could aggravate the disk-check problem covered here in recent weeks and also delay start-up, but I have not yet been able to confirm the problem.

**Making plans.** Switching to 32-bit mode on a Mac with 32-bit-clean ROMs is problematic enough. The additional glitches with the 32-bit System Enabler make a methodical approach even more important.

The first step should be an assessment of the benefits of 32-bit addressing. Its primary purpose is the support of RAM configurations larger than 8 Mbytes, and it may not be worth the trouble to use 32-bit addressing and virtual memory on machines with less RAM.

The second step, if 32-bit addressing is justified, is to make sure that the hardware and software configuration supports it.

### Ask David Ramsey

## Save As dialog box defaults

**Q.** I keep frequently used applications in the Apple Menu Items folder, which seems to make the Save As dialog box default to that folder. What can I do?



**A.** Ah, a lightweight question to start off the column! Put the real application elsewhere — presumably the folder to which you'd like the Save As dialog to default — and put an *alias* of the program in the Apple Menu Items folder.

**Q.** What performance difference is there between the built-in video of the newer Macs and an accelerated video card?

**A.** Newer Macs provide fast built-in video systems with dual-ported video RAM connected directly to the processor bus. The Centris machines and the Quadra 800 are especially fast because some QuickDraw routines have been optimized for their 68040 CPUs.

The reason built-in video is fast is that it doesn't have to deal with NuBus, a bottleneck that any video card (except one designed for a processor direct slot) must go through. An accelerated video card, with its separate processor, works with data stored in the card's RAM. Operations that involve moving a lot of pixels around the screen, such as scrolling, will be very fast on a card, but operations that move a lot of data across the NuBus, such as playing a QuickTime movie, won't benefit.

There are other considerations: If you want 24-bit video, you'll need a Quadra 700, 900 or 950, or a video card. Some cards, such as SuperMac Technology Inc.'s Thunder 24, are much faster than even a Quadra 800 and offer optional hardware for specific applications, such as Adobe Photoshop. The criteria are clear: Mac internal video for up to 16-bit color and QuickTime, and accelerated cards for 24-bit-color and special applications.

**Q.** Can I fool my PowerBook 180 into thinking it has 256 shades of gray?

**Some programs I have won't run in 16-grays mode.**

**A.** You have some poorly designed programs, in my opinion. There's nothing you can do about this limit. There's no way to fool either the program or your PowerBook.

Please send questions to David Ramsey on CompuServe: 76702,335 or to Ask David Ramsey, c/o MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105.

Most important of all is the disk driver software, which must be 32-bit-clean from the very beginning to maintain the integrity of your data. Update the driver before switching on 32-bit addressing. Some NuBus or processor direct cards may need ROM updates for 32-bit addressing.

Once the configuration is ready for 32-bit addressing, Connectix suggests trying Apple's 32-bit System Enabler as a first choice. (I strongly recommend installing the Enabler

Patch along with the enabler.)

MODE32 may be a better first choice, however, because it lacks the problems of Apple's enabler, and it seems to have no disadvantages.

Please drop me a line or post a message in the MacWEEK Forum if you decide to enable 32-bit addressing on one of the pre-IIci Mac models. I am especially interested in hearing about compatibility between accelerated Macs and the 32-bit System Enabler (or MODE32). □

Comments on MacInTouch are welcome at 7 Parmenter Ave., Maynard, Mass. 01754. Phone (508) 897-2621. Address electronic mail to RICFORD on AppleLink or MCI Mail; to 72511,44 on CompuServe; or on the Internet to 72511.44@compuserve.com. Join us on-line in the MacWEEK Forum at location ZMC:MACWEEK on CompuServe or ZiffNet/Mac.



# *Until Now PostScript® Language Printing and Portability had Nothing in Common.*

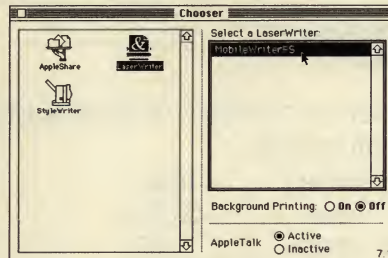


## **MOBILEWriterPS™ ... the real printer for PowerBooks®**

At last! A printer designed to truly match the power and portability of your Macintosh® PowerBook. Now there are no compromises, on what you print, or where you can print it.

- **Built-in Microsoft® PostScript Language Interpreter**  
- 35 standard PostScript compatible fonts, plus TrueType® and Adobe® Type 1 support.

- **AppleTalk® Connectivity**  
**LaserWriter® IINT Compatible**  
- "plug and play" just select LaserWriter in the chooser ... works with LocalTalk® networks.



- **6 Pages Per Minute** - up to five times faster than portable ink jet or thermal fusion printers.



***The Only Portable Printer with  
PostScript Language Compatibility and  
AppleTalk Connectivity ... Built in!***

- **Laser Quality and Performance** - Thermal Transfer Page Imaging produces crisp 300 dpi on plain papers and transparencies; 16 mhz. processor; 2MB memory.
- **Built-in Sheetfeeder** - folds out to hold 80 pages - letter, legal, and A4 sizes.
- **Battery/AC Desktop Operation** - permanent ni-cad battery, 150 pages/charge, print while charging from AC.
- **Multi-Platform Support** - Parallel I/O and HP® PCL 4 also included for MS-DOS/Windows® users.
- **Compact Size & Weight** - same size as a closed Powerbook, weighs about 8 lbs.

The MOBILEWriterPS ... what a LaserWriter would be, if only you could take it with you... and for a lot less money! For the dealer nearest you, just call:

**1-800-843-1347 Ext: 1020**

**MANNESMANN  
TALLY®**

Mannesmann Tally Corporation  
Kent, Washington

All listed trademarks are trademarks or registered trademarks of their respective manufacturers. Printout shown is a sample file from Quark XPress® 3.0.



## PowerCharger

- Portable full cycle conditioner charger
- Includes both AC adaptor and automobile cigarette light adaptor
- Discharges and recharges both original and BTI's batteries for Macintosh PowerBook 140, 145, 160, 170, 180 and 165C.

MC-170 High Capacity Battery\*: \$69.95

MC-CHR PowerCharger: \$129.95

MC-KIT Starter-Kit (one MC-170 and one MC-CHR): \$149.95

\*25% higher in capacity compared to the original Macintosh PowerBook 140/170 battery.

Dealers - Products available through Ingram Micro



## BATTERY TECHNOLOGY, INC.

5700 Bandini Boulevard, Commerce, CA 90040  
(213) 728-7874 (800) 982-8284 Fax: (213) 728-7996

## They just don't share...

When you bought software, the computer industry recommended buying individual software packages. You did, and now they don't work together. Productivity declined and confusion reigns.

A4 offers an integrated system allowing multiple users access to one common database.

- AR, AP, GL, PR Links
- Order entry, invoicing, quotes
- Inventory, purchase orders, job costing
- Modifiable sales and financial reports
- Word processing
- Contacts and sales lead follow-up
- Calendars and memos
- 4D Open Source available.
- From \$1,995 to \$5,995



## Softek Design, Inc.

PO Box 2100, Telluride, CO 81435 (303) 728-5252 Fax: (303) 728-6767

## BookEndz PowerBook docking station



- Eliminates cable confusion
- Easily assembles in minutes
- Uses your connectors
- Attach or detach peripherals in 2-3 seconds
- Works with all rear panel ports
- Envivio and Computer Care video compatible
- Includes switch extensions
- Includes optional power supply extension
- Other cable extensions available
- Matching security system available
- Model BE147 for PB140/145/170 - \$129.00
- Model BE168 for PB160/180 - \$129.00
- Mastercard/VISA accepted
- Dealer Inquiries welcome

## Pilot Technologies, Inc.

10025 Valley View Road, #156, Eden Prairie, MN 55344 (800) 682-4987, (612) 828-6002 Fax: (612) 828-6806 Patent Pending

## Have your Mac use the phone

Would you like your Mac to pick up the phone, take messages, forward them to your desktop e-mail, or even make outbound calls?

With PhonePro, the telephone applications builder, it can. PhonePro's easy to use icon-based programming language lets you build virtually any telephone application.

Features:

- Icon-based telephone applications builder
- Customizable ready-to-run applications included
- E-Mail connectivity
- Complete hardware and software system
- MacUser Eddy Award finalist, 4-stars rating in Macworld



## Cypress Research Corporation

240 East Caribbean Drive, Sunnyvale, CA 94089  
(408) 752-2700 Fax: (408) 752-2735 AppleLink: CYPRESS

## Show and sell in MacWEEK's showcase

Put your product in the spotlight any week, or every week in MacWEEK's Showcase advertising section. It's the perfect place to start your ad campaign and build visibility.

### Use MacWEEK's Showcase to:

- Introduce new products,
- Test direct-response channels, and
- Reinforce your advertising message with a low-cost frequency schedule.

To participate in MacWEEK's Showcase, advertisers must submit a color proof with the following:

- One 35mm slide or four-color transparency of the product or
- Computer generated art on disk, plus
- 75 words of ad copy, a brief headline, contact address and phone number.

Copy will be edited by MacWEEK if length exceeds 75 words. Each Showcase unit features one photograph or piece of artwork. MacWEEK will choose between photographs if more than one is submitted.

Insertion order and materials must be received two weeks before issue date.

First-time advertisers must submit full payment with materials.

Frequency	Rate*
1 issue	\$1,995
3 issues	1,900
6 issues	1,795
12 issues	1,715
24 issues	1,625
36 issues	1,510
48 issues	1,415

\*Showcase units are non-commissionable.

For further information, contact your Showcase representative:

West Coast

Becky Bacon (415) 243-3542

Midwest/East Coast

Michele Imfeld (415) 243-3563

**MacWEEK**  
301 Howard Street 15th Floor  
San Francisco, CA 94105  
(415) 243-3500





## PowerBook Presenter

The ultimate lightweight, convergence free, portable presentation system. The BOXLIGHT 2040 is your most efficient way to display computer and multimedia images to groups or large audiences.

- Eliminates the need for an overhead projector
  - Contains cables for Macintoshes, IBM Compatibles, and VCR's
  - 640 x 480 resolution
  - 256, 122 color palette
  - Rear projection capability
  - Weighs 20 pounds
- BOXLIGHT provides:
- Knowledgeable staff
  - Guaranteed satisfaction
  - Same day shipping
  - Choose from over 50 models.
- Call for free catalog.



### BOXLIGHT Corporation

17771 Fjord Dr., NE  
Poulsbo, WA 98370  
(800) 497-4007  
or (206) 779-7901  
Fax: (206) 779-3299

## Accelerate your PowerBook

Boost your PowerBook's performance with an F-Series™ Upgrade from Digital Eclipse.

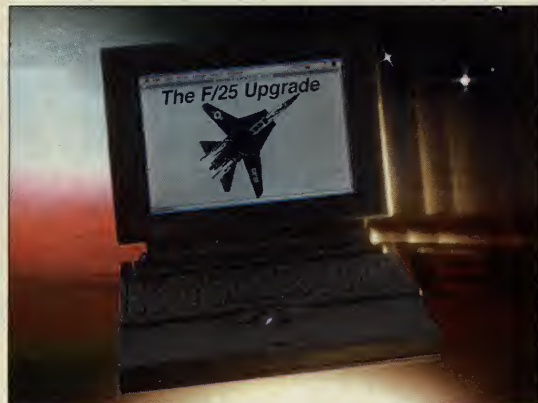
The F/25™ speeds up PowerBook 140s by 60% (to 25MHz) and includes a 68882 math co-processor. The F/25 effectively transforms a 140 into a 170 (without the active matrix screen).

The F/33™ effectively transforms a PowerBook 160 into a 180 (33MHz) and includes a co-processor.

- Dramatic performance improvement.
- Co-processor speeds up spreadsheets/numerical programs considerably.
- F/25: \$399; F/33: \$439.

Shipping included!

Available: PowerBook 145-FPU, Memory.



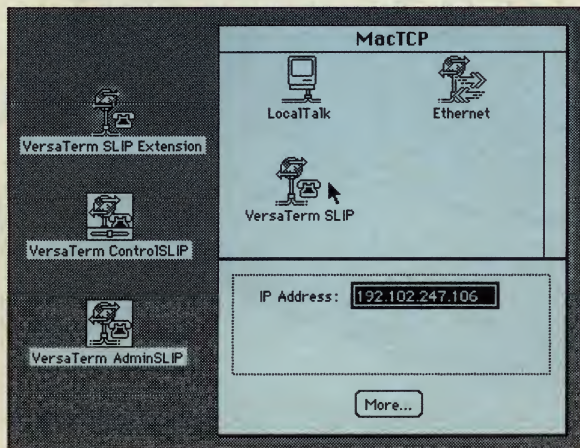
### Digital Eclipse Software Inc.

5515 Doyle Street No. 1, Emeryville, CA 94608  
(800) BUY-DESI (289-3374), (510) 547-6101  
Fax: (510) 547-6104, AppleLink: DESI.

## VersaTerm SLIP for MacTCP

SLIP (Serial Line Internet Protocol) support for Apple's MacTCP is now available in VersaTerm 1.0 at \$99.00, VersaTerm 4.6 at \$149.00, and VersaTerm-PRO 3.6 at \$295.00.

- Access VersaTerm's suite of TCP/IP services: Telnet, FTP Client, FTP Server and Time Client.
- Internet access from any location, by dialing into an appropriate SLIP server.
- Van Jacobson TCP/IP header compression (CSLIP).
- Scripting interface for automatic server connections.
- IP address can be automatically assigned.



### Synergy Software

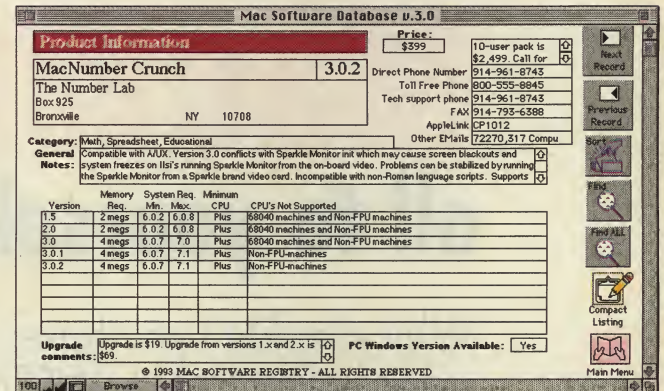
2457 Perkiomen Ave., Reading, PA 19606  
(215) 779-0522 Fax: (215) 370-0548 Applelink: D2296

## The Mac Software Database v3.0

The ultimate reference for network administrators, support specialists, computer consultants, and universities.

Over 2,200 products/800 vendors. Lists: system software requirements (including System 7.1, A/UX), bugs and workarounds, hardware required (including FPU), 68040 compatibility and memory required.

- Vendor address and phones.
- Search by any field.
- Sized for PowerBook screens.
- Requires FileMaker Pro 2.0.
- \$199 for four quarterly releases.
- Foreign orders welcome.
- VISA/MC accepted.
- Call for free demo disk and brochure!
- 30 Day money-back guarantee



### Mac Software Registry

P.O. Box 925, Bronxville NY 10708-0925  
Phone: (914) 961-8743 Fax: (914) 793-6388 AppleLink: CP1012

## Maximize your LC / LCII



Imagine adding an accelerator card to speed up your Mac LC/LCII/Performa 400 and still have room to add a video or network card.

The Sonnet TwinSlot LC includes:

- Adapter for two PDS cards
- Compatibility with DayStar Digital PowerCache plus Envisio, Farallon, Focus, E-Machine, Lapis, Mirror, Radius, RasterOps, SuperMac, etc.
- Room for full-height 3.5" drive
- 50 watt Universal power supply
- Quick and easy user installation
- Available now for \$249
- Also available: LC/LCII math cards \$55

### Sonnet Technologies, Inc.

18004 Sky Park Circle #260, Irvine, CA 92714  
(800) 945-3668 (714) 261-2800 Fax: (714) 261-2461

## 3 serial ports for your Mac!

Now it's easy to connect up to three serial devices to your Mac's Modem Port and still have access to AppleTalk devices on the Printer Port! The AXION Electronic Switch allows up to three serial devices to share a single port, on any Mac, with CDEV control!



- Automatically selects device from Comm ToolBox savvy applications
- Supports LocalTalk on Printer Port
- Easy to install & use
- Call today for information about where to buy!
- Suggested list price: \$159.00

### AXION™

1150 Kifer Road, Suite 203 Dept. MW-SC6, Sunnyvale, CA 94086  
(800) 8-AXION-1, (408) 522-1900, Fax: (408) 522-1908



# GET YOUR OWN.

There's nothing quite like having  
**MacWEEK**  
all to yourself.

Why shouldn't you have your own  
subscription to *MacWEEK*?

Apply now. Just complete the quali-  
fication form enclosed with this issue  
and mail to:

Customer Service Department  
MacWEEK  
c/o JCI  
P.O. Box 1766  
Riverton, NJ 08077-7366



Please allow four to six weeks for new subscriptions and changes of address to take effect.



# SyQuest

## SyQuest Specials

88mb 5110c External ..\$598

- Reads and writes 44mb cartridges
- Includes VideoShop (a \$599 value)

44mb External.....\$388

- Includes VideoShop (a \$599 value)

► **The SyQuest  
88C and 44MB  
removable  
drives, Fast,  
Compatible,  
storage at a  
Great Price!**



## Speed, Compatibility and Great Value

The new SyQuest 5110c 88mb drive reads and writes to your standard 44mb cartridges. This means you do not have to sacrifice any compatibility to increase your Syquest removable capacities!! These drives will access any file on any 44mb or 88mb cartridge. You can now expand your SyQuest storage capabilities without worrying about compatibility. Combine this with the fact that SyQuest offers you one of the lowest costs per megabyte and you have a drive that is truly a breakthrough.

## Includes DIVA Video Shop free

Each SyQuest cartridge we ship includes the DiVA VideoShop a \$595.00 application that marries powerful digital video technology and the Macintosh. VideoShop gives you the ability to produce complete QuickTime movies. Best of all you don't have to be a video editor to use VideoShop. If you know how to select, cut, paste, drag and drop - you have all the skills you need to become an expert QuickTime movie maker. VideoShop is a tremendous value and is free with each SyQuest cartridge you purchase!

## Flawless Toll Free technical support, Great Service and 30 days to love it

Our technical support team is one of the best in the industry, giving you the right answer right now. They are experts on all our removable products and will gladly spend as much time as necessary to answer any questions you may have. We handle virtually all warranty replacement/repair within 24 hours of the time received. We also ship 97% of our products the same day they are ordered.

..Try a Direct SyQuest drive for 30 days. If you don't agree that it's the best value in storage available today, send it back for a full refund less the freight. We know you'll be impressed...

**Direct SyQuest 88c**  
Reads and Writes 44mb cartridges ....**598.00**

**Direct SyQuest 44mb**  
Our most popular removable drive....**388.00**

**MAC DIRECT**  
Specialists in Mac Storage

60 East Chestnut - 145, Chicago, IL 60611

No charge Visa or Mastercard, Amex accepted COD, Telecheck Approved Checks, Gov., Corp., Univ., P.O.s welcome. Factory warranty. Return Authorization number required for returns. Prices, terms and availability subject to change without notice.

**800 • 621 • 8462**



# Hot Hard Drive Prices From Mac Direct!



For 2 years Conner has been one of Apples largest hard drive suppliers!

## Conner Drives

	Internal	External
C 42 MB 3.5" LPS, 2 yr warr, 150,000 MTBF .....	\$168	\$218
C 85 MB 3.5" LPS, 2 yr warr, 150,000 MTBF .....	\$198	\$258
C 120 MB 3.5" LPS, 2 yr warr, 150,000 MTBF .....	\$248	\$308
C 170 MB 3.5" LPS, 2 yr warr, 150,000 MTBF .....	\$288	\$348
C 212 MB 3.5" LPS, 9ms, 2 yr warr, 150,000 MTBF, Fast SCSI .....	\$368	\$428
C 540 MB 3.5" 8.5 ms, 4500 RPM, 2 yr Warr, 150,000 MTBF, Fast SCSI ..	\$898	\$958

These new Conner drives are so reliable, that Conner has been one of Apples largest suppliers of drives. The 150,000 hours Mean Time Between Failure and the incredible speed of the 540 are just two reasons to buy a Conner.

## Fujitsu Drives

	Internal	External
330 MB 3.5" 9ms, 5yr warr, 200,000 MTBF .....	\$848	\$898
520 MB 3.5" 9ms, Fast SCSI, 5yr warr, 200,000 MTBF .....	\$898	\$978
1.1 Gig 3.5" 8.5ms, 5yr warr, 300,000 MTBF, Fast SCSI .....	\$1798	\$1898
1.2 Gig 5.25" 11.5ms, 5yr warr, (MacWorlds Fastest Gig) Fast SCSI ..	\$1298	\$1398
2.06 Gig 5.25" 11.5ms, 5yr warr, 300,000 MTBF, Fast SCSI .....	\$2288	\$2388
2.4 Gig 5.25" 11.5ms, 5yr warr, 300,000 MTBF, Fast SCSI .....	\$2448	\$2548

\*Mean Time Between Failure is the average life expectancy of a drive.

## Toshiba Drives

	Internal	External
1.2 Gig 3.5" 12.5ms, 256 cache, SCSI-2, Internal for CI,Quadra .....	\$1398	\$1498
830 MB 3.5" 12.5ms, 256 cache, SCSI-2, Internal for CI,Quadra .....	\$1198	\$1298

## 213 MB 2.5" PowerBook Drive

- 213mb inside your PowerBook!
- Fast, quiet, low power
- The fastest drive available for the PowerBook,
- Only 0.12 watts power usage in sleep mode and 3.0 during access

Internal kit .....\$688

External with battery .....\$788



## Seagate Drives for audio/video editing

	Internal	External
1.2 Gig 3.5" 10.5ms, 1 Yr warranty .....	\$1598	\$1698
1.2 Gig Wren 5.25" 15ms, 1 Yr warranty .....	\$1398	\$1498
1.6 Gig Wren 5.25" 15ms, 1 Yr warranty .....	\$1748	\$1848
2.1 Gig Wren 5.25" 12.5ms, 5 Yr warranty .....	\$1948	\$2048
1.6 Gig Elite 5.25" 11.5ms, 1 Yr warranty .....	\$1998	\$2098
2.4 Gig Elite 5.25" 11ms, 5 Yr warranty .....	\$2898	\$2998
3.4 Gig Elite 5.25" 11ms, 5 Yr warranty .....	\$3948	\$4048

## CD ROM Drives from Toshiba

Toshiba 3401 "Kodak photo CD" Multisession, 325ms access time, ....\$598

# MACDIRECT

Specialists in Mac Storage

## Smart Storage Solutions Syquest, Optical & DAT

### SyQuest Removable Drives

44 MB Removable 19ms access time, 2 Yr Warr, Includes cartridge .....	\$388
88 MB Removable 19ms access time, 2 Yr Warr, Includes cartridge .....	\$498
88C MB Removable 19ms, 2 Yr Warr, Includes cartridge, Fully Compatible .....	\$598

NU  
DESIGN

### Optical Drives from NuDesign

128 MB 3.5" Series II fast 37ms access, includes cartridge .....	\$998
128 MB 3.5" Series V fast 32ms access, includes cartridge .....	\$1098
256 MB 3.5" Series X fast, read/write 128mb compatible, includes cartridge ..	\$1798
600 MB Hyperspace 5.25" 28ms Access time, 1MB/sec Trans, free cart. ....	\$2598

- MacWorlds Editors Choice!
- Super access time and unlimited storage
- Lowest cost per megabyte for disk storage
- Comes with FWB Hard Disk Tool Kit
- "Fast, inexpensive, good technical support, a rare combination of qualities in a storage device." MacWorld

### The NuDesign 3.5" Optical MacWorlds Editors Choice



### DAT Drives from NuDesign

2.1 Gig with SoftBackup , Includes free 90m DAT .....	\$998
2.1 Gig with Retrospect , Includes free 90m DAT .....	\$1098
5.0 Gig with SoftBackup , Includes free 90m DAT .....	\$1398
5.0 Gig with Retrospect , Includes free 90m DAT .....	\$1498

### The NuDesign DAT



- Up to 2.1 Gig per tape
- Our best buy ever on DAT!
- Up to 10 mb per minute backup time
- Available with a complete version of Retrospect or SoftBackup

60 East Chestnut - 145, Chicago, IL 60611  
No charge, Visa or Mastercard, Amex accepted COD, Telecheck Approved  
Checks, Gov., Corp., Univ., P.O.s welcome. All new drives, preformatted with  
latest stable system software. Factory warranty. Bracket, cables and software  
included. 30 Day Money back Guarantee covers drive products only. Return  
Authorization number required for returns. Prices, terms and availability  
subject to change without notice.

# 800-621-8462

Hours: 8:30 - 8:00 CST, Saturdays 10:00 - 4:00  
Order Tracking (8:30-5:00) 800-759-2133

Hey" MacDirect Now sells Simms,  
Call for our low prices!



## SAMPO 19" Color System 1298.00



**Sampo 19" 8 Bit Color System.....\$1298.00**

**Mono System.....\$698.00**

**Grey Scale System .....\$998.00**

- The SAMPO is a high quality dual page display without the high cost!
- Includes 1 bit, or 8 bit Bit Video board and cable
- 2 page display supports all Mac IIs', the SI, SE-30, SE and the LC

## Trinitron 20" Color System

**8 Bit Quadra compatible .....\$1898.00**

**24 Bit System with RasterOps 24Li.....\$2898.00**

- RasterOps 8xl board available for all Macs
- The Trinitron-20 is a 20" monitor incorporating Sony's patented technology and one of our best buys! True Trinitron color at a great price!
- Includes 8 bit or 24 Bit Video board and cable
- 2 page display supports all Mac IIs', the SI, SE-30, and the LC

**NuDesign Full Page Grey Scale .....\$398.00**

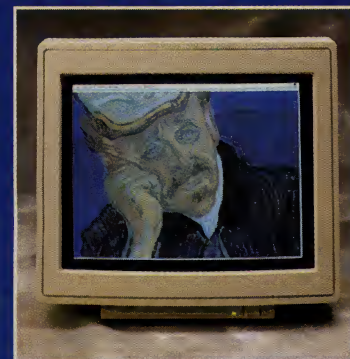
- Plug compatible with Si, Ci and Quadra (16 levels of Grey).
- Available with 1 Bit interface card for all Mac IIs', SE-30, SE and LC \$488.00.

## Get the Big Picture with MacDirect Monitors



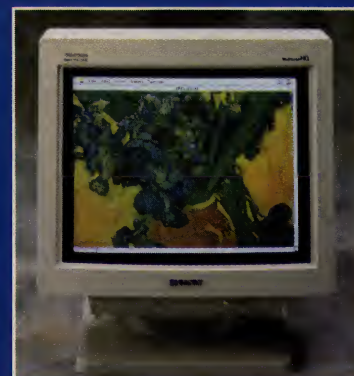
**14" SONY Trinitron  
\$428**

- SONY 1320 for the Mac LCs.



**20" Trinitron System**

- 8 Bit Quadra compatible **\$1898**
- With 24 Bit interface **\$2898**



**16" SONY Trinitron  
\$1098**

- Plug compatible with the Quadra
- Plug compatible with the CI, SI and LC at 640x480



**NuDesign Full Page  
Display  
\$398**

- Plug compatible with the IIsi, CI, and the Quadra (16 levels of grey)

## Modems! - Prometheus and Zoom

**Promodem 144i 14.4/14.4SR Fax w/ V.42 & V.42 bis .....\$278**

**Promodem 144e ext 14.4/96SR Fax w/ V.42 & V.42 bis .....\$278**

**Promodem 24e ext 24/96SR Fax w/ V.42 & V.42 bis .....\$128**

**Promodem Mini 2400 2400 BPS mini, data only .....\$79**

**Zoom Faxmodem PBK 96/48 SR Fax w/2400 BPS Modem .....\$119**

**Zoom Faxmodem PKT Portable 96/48 SR Fax w/2400 BPS Modem .....\$139**

**Zoom Faxmodem FXV V42 bis/MNPS/2400 BPS, 96/96 SR Fax .....\$178**

**Zoom Faxmodem FXV.32 V.32 bis, 14.4 data & fax, V.42 bis/MNPS .....\$298**

## Samsung RISC based PostScript printer Upgradeable to 1200 dpi!

**SAMSUNG 300 dpi Printer .....\$1298.00**

**1200 DPI Upgrade (Available in May).....\$998.00**

- Incredible 1200 dpi upgradeability allows for future growth
- SAMSUNG is one of the worlds largest electronics companies!
- Includes PostScript and PCL-5 compatibility
- Intensely fast Intel i960 RISC processor



## UMAX Color Scanners

**Umax UC-630 With PhotoShop.....\$1098.00**

**Umax UC-840 With PhotoShop.....\$1298.00**

**Transparency/Slide Scanner Option.....\$728.00**

**Automatic Document Feeder .....\$498.00**

- Rated four mice by MacUser (Dec '91) ▪ Rated fastest by MacUser(Dec '91)
- "Boasts the highest vertical resolution..." "Umax produced the best images..." excel(s) in speed and color accuracy" MacUser

**Umax UC-1200S With PhotoShop .....\$3098.00**

**Transparency/Slide Scanner Option.....\$798.00**

- Incredible 1200 dpi scanning res. recognizes 1 billion colors internally
- Single-pass design increases scanning speed
- Includes Adobe Photoshop

**Umax 600DPI Greyscale With Typereader OCR**

**Software, Ofoto and Publish It, .....\$898.00**

- An incredible OCR package with over \$1000 in software alone,

## Scanner Special

**Umax UC-630 .....\$1098  
With Photoshop**

- Rated 4 Mice by MacUser
- Rated Fastest by MacUser
- 8 1/2 x 14 Scanning area

**Umax UC-1200S ....\$3098  
With Photoshop**

**800-621-8462**  
**MACDIRECT**



# THIRD WAVE

1(800)882-7555

**OPTICAL 128  
FROM \$1199**

Ask about our special offer for  
qualified service bureaus!

**The new removable standard!**

128MB per cartridge at only 30% the media cost of SyQuest! Plus the data  
reliability inherent in magneto-optical technology.  
Prices start at \$1199 with cartridges only \$39.

## CACHE CARDS, ACCELERATORS, AND COPROCESSORS

Logica Cache cards for Iisi & Ilici speed up  
performance by 40 percent. 882 FPU's for LC,  
LC II, Classic II, and the Iisi improve by over  
100 percent. For maximum performance, choose  
Daystar or Logica '030 accelerators,  
or '040 accelerators from Fusion Data and Radius.

**Now Shipping!**

LogiCache 50 MHz w/882	1019.00
LogiCache 50 MHz	939.00
Accelerator Adapter	40.00
LogiCache Ilici 64K Cache	139.00
LogiCache Iisi 64K Cache	149.00
Iisi Dual Slot Adapter	59.00
20 MHz Math chip for Adapter	69.00
DayStar PowerCache 33,40,50 MHz	CALL
DayStar PowerCache 33,40,50 MHz w/882	CALL
Radius Rocket, Rocket 33, Rocket 25i	CALL
TokaMac 040 Accelerators for LC, Iisi, SE 30, Ilici	CALL
16 MHz 882 FPU for Classic II, LC, LC II	69.00

Asante AUI to 10T Adapter	89.00
AsanteHub 1012	849.00
AsanteHub 1700 or 1900 Series	CALL
Asante 10T Hub/8	285.00
Asante 10T Hub/12	559.00

*5 Year Warranty  
Rated Number One  
by MacUser*

## LOGICA IISI CACHE BUNDLE ONLY \$249

INCLUDES 64K CACHE,  
DUAL SLOT ADAPTER,  
20MHz FPU CHIP

**ASANTÉ ETHERNET FROM \$169**

NuBus or Iisi/SE 30 Thick/Thin or Thick/10T	159.00
NuBus or Iisi/SE 30 Thick/Thin/10T	209.00
LC Thin or LC 10T	159.00
LC Thin/10T	209.00
SE Thick/Thin	159.00
SE Thick/10T	159.00
SE Thick/Thin/10T	209.00
FriendlyNet LC or NuBus (w/Thick/Thin/10T Adapter)	209.00
FriendlyNet Iisi (w/Thick/Thin/10T Adapter)	239.00
FriendlyNet Adapters Thick/Thin/10T	89.00
SCSI EtherNet 10T	289.00
SCSI EtherNet 10T (PowerBook)	319.00
SCSI EtherNet Thick/Thin/10T	339.00
SCSI EtherNet Thick/Thin/10T (PowerBook)	369.00

**BEST  
PRICES!**

## MEMORY UPGRADES

1MB, 2MB, 4MB SIMMs
16MB SIMM (Iisi,Ilici,Quadra 900/950)
16MB SIMM (Quadra 700)
PowerBook 2MB
PowerBook 4MB
PowerBook 6 MB
PowerBook 100 4MB
PowerBook 100 6MB
Quadra 700/900 VRAM SIMM
Quadra 950 VRAM SIMM
LC 512K VRAM SIMM

SIMM Prices subject to change, reflect cash discount.

**CALL  
FOR  
LATEST  
PRICES!**

## DISPLAY SYSTEMS

SuperMatch color displays 17 - 21 inches.  
Spectrum and Thunder video cards.  
VideoSpigot, VideoSpigot Pro,  
Spigot and Sound, Spigot and Sound Pro.  
Radius Precision Color products,  
Radius Pivot, Color Pivot.  
Call for latest prices on video.

## STORAGE SYSTEMS REMOVABLE MEDIA

All of our DAT drives include a copy  
of Retrospect 1.3, one OAT cassette,  
one OAT cleaning cassette, and your  
choice of SCSI cable.

Optical 128P	1199.00
Optical 600 <i>It's a SONY!</i>	2699.00
45 SR (SyQuest) with cartridge	409.00
88 SR (SyQuest) with cartridge	509.00
OATdrive 26B	1395.00
OATdrive 86B	1595.00

**CALL FOR PRICING  
ON ALL MODELS OF  
MACINTOSH CPUs**

## DISK DRIVES

	INTERNAL	EXTERNAL
Go 80MB	349.00	
Go 120MB	469.00	
120 MB	349.00	439.00
240 MB	629.00	719.00
520 MB	1049.00	1139.00
830 MB	1269.00	1359.00
1.2 GB	1599.00	1689.00
1.5 GB	CALL	CALL
2.0 GB	CALL	CALL
1.2 GB 3.5"	2129.00	2219.00

**830 MB TOSHIBA DRIVE  
ONLY \$1269!**

Drive Prices guaranteed to be at or below listed prices. Call for latest.  
SyQuest, Optical, and DAT available internally for Quadra 900 and 950!

## MEDIA

SyQuest 45 MB cartridge	68.00
SyQuest 88 MB cartridge	115.00
OAT cassette 60 meter	12.00
OAT cassette 90 meter	18.00
Optical cartridge (ISO) 512 kb/sector	110.00
Optical cartridge (ISO) 1024 kb/sector	110.00
Optical cartridge 128 MB	39.00



## ALL MACINTOSH MODELS



## QUADRAS—POWERBOOKS

## COMPARE OUR DAT DRIVES TO THEIRS.

	Third Wave DATdrive	The Other Guys
Warranty	5 years	2 years
Price: 26B	1395.00	1399.00
Compression (86B)	1595.00	1699.00 (only 56B)
Firmware Upgrades	From tape	Chip replacement
Upgrade Method	User install	Vendor install
OEM	Hewlett Packard	Archive
Form factor	3.5"	3.5"
MTBF	50,000 hours	40,000 hours
Software	Retrospect	Retrospect





#1 IN

SERVICE

# MACCENTER®

The Center Of The Macintosh Universe™

NEC



**FREE!**  
3 YEAR  
ON SITE  
WARRANTY!

**\$1129\***

**Limited Offer!**  
**Silentwriter Model 95f**

\* with \$250 End User Rebate

**TEXAS  
INSTRUMENTS**

MacUser  
↑↑↑↑

microLaser  
Turbo **\$1499**

microLaser Plus PS17  
microLaser Plus PS35



\$1199  
\$1329

**hp HEWLETT  
PACKARD**



**\$1999**

**LASERJET 4M**

## MAC SYSTEMS

**COLOR**  
**PowerBook 165c**  
**NOW AVAILABLE!**

PowerBook 160 4.40

**\$2299**



WE HAVE

**IN STOCK**

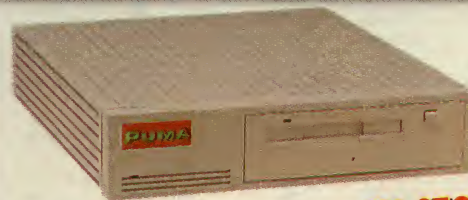
ALL POWERBOOKS: 160, 165c,

180, 210 AND 230

CALL TO CLAIM YOURS!

## OPTICAL DRIVES

**PUMA™**  
**256 MB**  
**Optical**



**IN STOCK!**

- Puma™ 256 reads & writes ISO/ANSI standard 128 MB cartridges and a true, non-compressed 256 MB
- Fast transfer rate up to 1.2 MB/second
- Fast 35 ms access time
- Optical reliability (10 year data life)

Puma™ 256 MB 3.5" Drive

**\$1799**

Puma™ 128 MB 3.5" Drive

**\$999**

128/256 MB 3.5" Cartridge

**\$59/\$99**

Five Year Warranty available!

**CAPTURED,  
BUT NOT  
TAME™**

## SYQUEST DRIVES

**Eagle™ 44**

**\$399**

**Eagle™ 88**

**\$499**

**NEW! Eagle™ 88C**

**\$599**

The new Eagle 88C can read and write to both 44MB and 88MB cartridges.

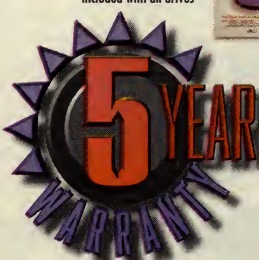
Quadra 900/950 internal mounts available!



## HARD DRIVES



FWB Hard Disk Toolkit PE  
included with all drives



**30 DAY MONEY BACK  
GUARANTEE!**

**GIG ALLEY™**

**TOSHIBA 3.5"**

**1.4 Gig**

**\$1399**

internal mount

SCSI-2

Hard Drive 12.5 ms access time

**MICROPOLIS® 3.5"**

**1.2 Gig**

**\$1699**

internal mount

Fast SCSI-2

Hard Drive 10 ms access time

**FUJITSU 3.5"**

**1.1 Gig**

**\$1799**

internal mount

Fast SCSI-2

Hard Drive 8.5 ms access time

International ☎ United Kingdom 0800 89 5074 France 05-90-1430 Germany 0130-81-4748 Mexico 95-800-292-7029

## SIMMS

**\$114**  
w/ trade in  
**\$32**  
**\$59**  
**\$199**

**LIFETIME WARRANTY**

8:00 am – 8:00 pm CST M-F  
10:00 am – 5:00 pm CST Sat  
Sunday: Call, you may get lucky

4930 South Congress Avenue, Suite 303  
Austin, Texas 78745-2381

**Net 30 day terms**

for all Government, Military, School District and  
University Purchase Orders. Net 30 day terms  
are also available for all approved Corporate  
Purchase Orders. Call for details on our Corporate  
Purchase Program.

MasterCard & Visa accepted with NO surcharge.  
Credit cards will not be charged  
until order is shipped.  
NO surcharge or minimum  
for Fax or Foreign orders.

Most products available in 110v & 220v.  
Prices valid 3/15/93 through 3/22/93.

All returns require approval and  
are subject to a restocking fee.

© MacCenter 1993

FAX 512-444-3726  
International Orders 512-445-5114

**800 950 3726**





# HARDWARE THAT FITS



“ My experience in running large retail organizations for more than 16 years was the person at the top normally heard from customers only when things ‘had not gone according to Hoyle’ somewhere down the line. I would like to be the exception and bring to your attention my experiences of outstanding service from two of your employees during my recent purchase of a RealTech 19" monitor and RasterOps 24XLI card...their responsive service was a refreshing change.”

— Stephen E. Snider

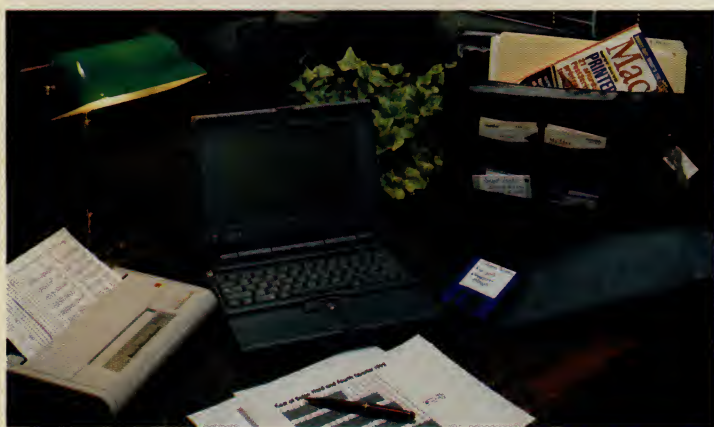
## Monitors: all sizes, types, and prices.

	Price	Tube type	640 x 480	640 x 870	832 x 624	1024 x 768	1152 x 870	Auto-syncing	Anti-glare	Mac on-board compatible
A. Radius 21" Color	\$3,069	Hitachi					■		■	
RasterOps 21" Color	2,799	Hitachi					■		■	■
B. SuperMac (SuperMatch) 21"	2,529	Hitachi					■		■	
SuperMac 21" Mono/Grayscale	989	—					■		■	
C. RasterOps 20" Trinitron Multi-Mode	\$2,329	Trinitron	■	■	■	■	■	■	■	■
Radius Precision Color 20"	2,389	Trinitron	■	■	■	■	■	■	■	■
RasterOps 20" Hitachi Color	1,469	Hitachi	■	■	■	■	■	■	■	■
D. RealTech 20" Trinitron Multi-Mode	1,895	Trinitron	■	■	■	■	■	■	■	■
E. SuperMac 20" (SuperMatch)	1,499	Hitachi			■					
SuperMac 20" (SuperMatch Dual-Mode)	2,499	Trinitron			■	■		■		
F. NEC 17" 5FG Color	\$1,589	Toshiba	■	■	■	■	■	■	■	
RasterOps 16" (RasterOps Sweet 16)	1,249	Panasonic		■					■	■
G. RealTech 17" (RealTech Multi-Mode)	995	Hitachi	■	■	■		■	■	■	■
H. Sony 17"	1,189	Trinitron	■	■	■		■	■	■	■
I. Seiko Instruments 17" CM1760LR	1,249	Trinitron	■	■	■		■	■	■	■
J. Radius Precision Color Pivot 15"	\$959	Non-Trinitron	■	■	■	■	■	■	■	■
K. RealTech 15" Grayscale	449	—		■					■	■
L. Seiko Instruments 14" CM1445	479	Trinitron	■							■
M. Sony 13" Color	689	Trinitron	■						■	■

## Monitors



## PowerBooks



These PowerBook 160s and PowerBook 180s each include: 8 Mb of RAM, expandable to 14 Mb; display with 16 grayscale levels; 1.4 Mb floppy disk drive.

### PowerBook® 160

25 MHz 68030. Supertwist display. 40, 80, or 120 Mb hard drive.

PowerBook 160 with 8/40 ..... \$2639  
PowerBook 160 with 8/80 ..... 2999  
PowerBook 160 with 8/120 ..... 3359

### PowerBook® 180

33 MHz 68030 FPU. Active matrix display. 80 Mb hard drive.

PowerBook 180 with 8/80 ..... \$4319  
PowerBook 180 with 8/120 ..... 4679

### POWERBOOK MEMORY UPGRADES & ACCESSORIES

PowerBook 160 & 180 Memory Upgrades (6/8/10).... \$289/409/499  
PowerBook Duo 210 & 230 Memory Upgrades (4/8/12) .... 279/559/809  
Auto Power Adapter..... 89

Charger/Reconditioner ..... 169  
Auxiliary Power Pack..... 169  
Radius PowerView ..... 509  
PowerBook Battery..... 79

The PowerBook Duo 210 8/80 and PowerBook Duo 230 8/80 transform into desktop computers by using the optional Duo Dock. Each PowerBook Duo 210 or 230 includes:

- 640 x 400 Supertwist liquid crystal display with 16 grayscale levels
- 8 Mb of RAM, expandable to 24 Mb
- EverWatch Battery Saver technology
- Optional internal modem

### PowerBook® Duo 210 8/80

**\$2,529**  
Lease: \$69/month

25 MHz 68030 microprocessor. 80 Mb hard drive.  
All PowerBooks listed here are equipped with a 19mm trackball.

### PowerBook® Duo 230 8/80

**\$2,889**  
Lease: \$79/month

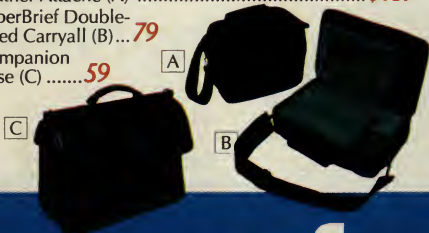
33 MHz 68030 microprocessor. FPU, 80 Mb hard drive.  
PowerBook Duo 230 with 8/120.... \$3249

### POWERBOOK MODEMS

Global Village PowerPort Gold/Silver/Bronze..... \$459/399/209  
MassMicro FM 24/96 PB..... 189  
Zoom Pocket Modem ..... 119

### POWERBOOK CARRYING CASES

Leather Attache (A) ..... \$139  
SuperBrief Double-sided Carryall (B).... 79  
Companion Case (C) ..... 59



## Accelerators

DO YOU FEEL THE NEED FOR SPEED?

CALL US, AND WE'LL MATCH YOU

WITH THE RIGHT ACCELERATOR.

**AE** Applied Engineering®  
**DAYSTAR** DIGITAL  
**PLI** radius

### APPLIED ENGINEERING

TransWarp SE (40 MHz w/16-FPU)..... \$959  
TransWarp LC (25 MHz) ..... 459  
TransWarp LC (50 MHz w/50-FPU) ... 1319  
TransWarp 040 (25 MHz) ..... 1749  
1.44 SuperPlus Drive ..... 279  
QuadraLink..... 199

### DAYSTAR DIGITAL

PowerCache Accelerators  
33 MHz Accelerator ..... \$379  
40 MHz Accelerator ..... 549  
50 MHz Accelerator ..... 719  
25 MHz Turbo 040 (Ilci,Ilisi)..... 1099  
33 MHz Turbo 040 (Ilci,Ilisi)..... 1349  
FastCache Turbo 25 (040) ..... 259  
FastCache Turbo 33 (040) ..... 339  
Charger (Photoshop accelerator) ..... 799  
PowerCache Adapter ..... 40

### FUSION DATA

TokaMac Ilci..... \$1259  
TokaMac Ilisi ..... 1259  
TokaMac ELC ..... 969

### NEWER TECHNOLOGY

Quadra 700 Overdrive ..... \$259  
Image Magic NuBus ..... 769  
Image Magic FX/PDS ..... 699  
Image Magic Quadra/PDS ..... 699

### PERIPHERAL LAND

Quick SCSI Accelerator ..... \$339

### RADIUS

Radius Rocket 25i ..... \$1239  
Radius Rocket 33 ..... 2069  
SCSI-2 Booster ..... 249  
Rocket Share..... 419

# Your one-stop source for Mac solutions.



# 1-800-364-WEEK

CALL TOLL-FREE IN CANADA:  
1-800-972-3018

## NETWORKING CARDS & HUBS

### Asanté 10T Hub/8 (Ethernet concentrator)

Lets you use inexpensive unshielded twisted-pair (UTP) telephone wire instead of expensive coaxial cable for local area networks.

10Base-T Hub/8 .....\$265



Asanté EN/SC (SCSI-to-Ethernet adapter). For Macs without available slots.

EN/SC .....\$339

Asanté MacCon 3 Ethernet card. Automatically configures to media used.

MacCon 3 Card .....\$216

### TechWorks GraceLAN Update Manager

GraceLAN for 50 Users .....\$285

We carry a full line of Asanté and Dayna cards.

### DaynaPORT E/II-T NuBus Card

Connects Mac II computers to thick, thin, fiber optic or 10Base-T Ethernet cable systems.

Includes an RJ-45 jack for 10Base-T wiring.

DaynaPORT E/II-T NuBus Card .....\$149

DaynaPort E/Z. Ideal for Macs that don't have a slot for a network interface card.

DaynaPORT E/Z .....\$269

### Dayna EtherPrint

Divides your network into multiple zones.

Dayna EtherPrint.....\$335

Dayna EtherPrint Plus.....\$439



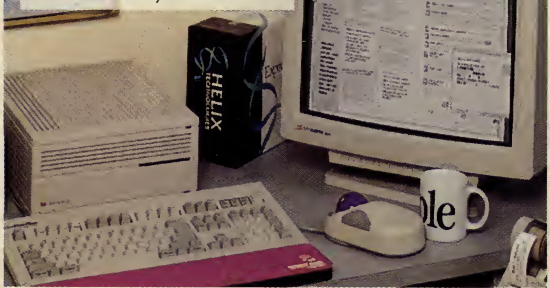
# Systems Configured to your specifications

Here are a few of the systems/workstations we sell. We'll let you mix and match your choice of components.

### Macintosh IIfx Business Solution

Macintosh IIfx with 5 Mb of RAM, 212 Mb hard drive, Supermac 21" platinum monitor with video card, cache card, and Key Tronic MacPro Plus extended keyboard.

**\$4,095**  
Lease: \$112/month



### Mac IIsi Solution

**\$2,729**  
Lease: \$77/mo.

Mac IIsi Solution



**\$7,849**  
Lease: \$215/month

### Quadra 700/Trinitron Intermediate Graphics Solution

Quadra 700, 8 Mb of RAM, 520 Mb hard drive, RealTech 20" Trinitron monitor w/PaintBoard Li and Key Tronic MacPro Plus extended keyboard.

Macintosh IIsi with 5 Mb of RAM, 120 Mb hard drive, Seiko Instruments CM 1445 14" Trinitron monitor, and Key Tronic MacPro Plus extended keyboard.

Hours: 8 am-7 pm Central Standard Time

30-DAY MONEY-BACK GUARANTEE on all hardware (except printer consumables and special-order items). Before returning merchandise, call our Customer Service Dept. toll-free to receive a returned merchandise authorization number (RMA), which must be included with any products you return. No C.O.D. returns, please. Thank you for your cooperation. ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

## Scanners

FAX: 1-409-539-4141  
CALL: 1-409-760-2400

Toll-free tech support:  
1-800-364-MACS

Flatbed desktop scanners for 24-bit color, 8-bit grayscale, and black/white images. Ideal for mid-range output or position prints for mockups/presentations.

	Price	DPI	Brightness & contrast levels	Scanning area	Flat art	Transparencies	Slides	Software
<b>MICROTEK</b>								
Scanmaker II	\$909	600	14	8.5 x 13.5	■			Includes limited version of Adobe Photoshop
Scanmaker IIXE	1,179	600	14	8.5 x 13.5	■			Includes full version of Adobe Photoshop
Scanmaker 1850 Slide Scanner	1,569	1850	14	2.5 square inches		■		Includes full version of Adobe Photoshop
<b>REALTECH</b>								
Scan 800 Optional Adobe Photoshop	\$1,199 200	800	200	8.5 x 11.75	■			Includes Scan-Match color calibration software
Scan 800 with Transparency Option	1,695	800	200	8.5 x 11.75	■	■	■	
<b>UMAX</b>								
UC 630	\$1,119	600	51	8.5 x 14	■			Includes full version of Adobe Photoshop
Transparency Option	729	(600)	(51)	6 x 9	■	■	■	
UC 840	1,289	800	51	8.5 x 14	■			Includes full version of Adobe Photoshop
Transparency Option	729	(800)	(51)	6 x 9	■	■	■	
UC 1200S	3,019	1200	51	8 x 11.8	■			Includes full version of Adobe Photoshop
Transparency Option	729	(1200)	(51)		■	■	■	



The photo above is a 300 dpi image of an 8 x 10 transparency. It was scanned on the RealTech Scan 800 with Transparency Option, then adjusted with ScanMatch and color-corrected with Adobe Photoshop.

# Scanners & Printers

## Laser printers

The right printer can do wonders for your productivity. Do you need speed? Adobe PostScript Level 2? Do you need to print a lot of pages each month?

### NEC Silentwriter Model 95

300 dpi  
6 pages/min.  
2 Mb RAM (expandable to 5 Mb)  
**\$1,469**  
Lease: \$40/month

Adobe PostScript Level 2  
Motorola 68000 processor

6,000 pages per month  
Built-in envelope feeder & 250-sheet tray; optional 2nd tray available in letter or legal sizes

No SCSI port  
Appletalk RS-422, parallel, and RS-232C

35 Micro-fine toner and NEC's patented "Sharp Edge" technology create sharp black print quality



400 dpi  
4 pages/min.  
4 Mb RAM (expandable to 16 Mb)

PostScript compatible  
Weitek XL-8220 processor

3,500 pages per month  
Optional 2nd paper drawer

Optional SCSI port  
Appletalk RS-422, parallel, RS-232C

35

**NewGen 400P**  
**\$1,879**  
Lease: \$51/month



300 dpi  
9 pages/min.  
2 Mb RAM (expandable to 10 Mb)

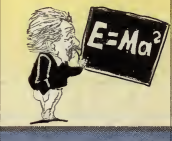
Adobe PostScript Level 2  
Weitek RISC processor

5,000 pages per month  
Optional 2nd paper tray & cassette feeder are available for \$250 (for both)

SCSI port  
Appletalk RS-422, parallel, and RS-232C

35 ATM font rendering technology builds raw type characters 4 to 5 times faster, enabling the RealTech Laser to print complex documents faster than other printers in its price range.

**RealTech Laser** **\$1,595**  
Lease: \$44/month



"Genius level" memory is dynamically allocated and automatically reclaimed.

★★★★★  
"The RealTech features not just a genuine Adobe interpreter, but also a PostScript Level 2 raster image processor (RIP), which earns it more than a few points for forward compatibility."  
— PUBLISH MAGAZINE, Feb. 1992  
Reprinted from MacUser, Sept. 1992. Copyright ©1992, Ziff Communications Co.



### Texas Instruments MicroLaser XL Turbo

300 dpi  
16 pages/min.  
2.5 Mb RAM (expandable to 10.5 Mb)  
**\$2,795**  
Lease: \$77/month

Adobe PostScript Level 2  
Weitek RISC processor

25,000 pages per month  
Optional 2nd paper drawer

Optional SCSI port  
Appletalk RS-422, parallel, and RS-232C

35

**TEXAS INSTRUMENTS**

### Texas Instruments MicroLaser Plus

300 dpi  
9 pages/min.  
1.5 Mb RAM (expandable to 4.5 Mb)  
**\$1,249**  
Lease: \$34/month

Adobe PostScript Level 1  
Motorola 68000 processor

10,000 pages per month  
Optional 2nd paper drawer and envelope feeder

Optional SCSI port  
Appletalk RS-422, parallel, and RS-232C

17

Available with 35 resident fonts (\$1349)

The only 11x17 printer with Adobe PostScript Level 2 for less than \$3500.



Choice of 300 or 400 dpi  
15 ppm (letter size); 8 ppm (tabloid size)  
4 Mb RAM (expandable to 16 Mb)

Adobe PostScript Level 2  
Weitek RISC processor (and ATM font rendering technology)

20,000 pages per month  
Two paper trays included (one tray for letter size; one tray for tabloid size.)

SCSI port

35

Three interface ports: Appletalk RS-422, IBM PC parallel, and RS-232C.

★★★★★

MACWORLD MAGAZINE September 1992

"...be forewarned: PostScript-clone printers still have a long way to go before they can rival true Adobe PostScript printers."

Quote from MacUser September 1992 issue. "Personal PostScript Printers" by Bruce Fraser.

### QMS 860 Hammerhead

600 dpi  
8 ppm (letter size); 4.6 ppm (tabloid size)  
12 Mb RAM (expandable to 32)  
**\$4,279** Lease: \$117/mo.

Adobe PostScript compatible  
Intel 80960CA RISC processor

10,000 pages per month  
Optional 2nd paper cassette

SCSI port  
Optional Ethernet  
39 fonts

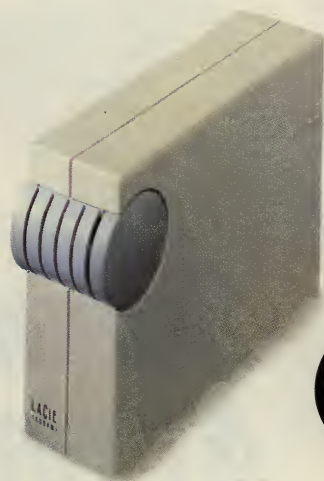
Three interface ports: Appletalk RS-422, IBM PC parallel, and RS-232C.



Jeanne is thrilled that she can print proofs of her company newsletter on tabloid-size paper. No more tiling!



# Our lot has great selection



## Internal, ZFP™, ZFP+™, Cirrus™ & Tsunami™ Drives

Our hard drives features a wide selection of capacities and quality brand-name mechanisms—all at very affordable prices. All drives have switchable active termination, efficient, quiet fans and universal power supplies.\*

### Quantum

	Internal	ZFP	Cirrus	Tsunami
40MB (3 1/2")	\$179	\$239	\$289	\$339
85MB (3 1/2")	\$209	\$269	\$319	\$369
120MB (3 1/2")	\$349	\$409	\$459	\$509
127MB (3 1/2")	\$279	\$339	\$389	\$439
170MB (3 1/2")	\$309	\$369	\$419	\$469
240MB (3 1/2")	\$389	\$449	\$499	\$549
525MB (3 1/2")	\$939	\$999	\$1049	\$1099
700MB (3 1/2")	\$1199	\$1259	\$1309	\$1359
1.05GB (3 1/2")	\$1339	\$1399	\$1449	\$1499
1.2GB (3 1/2")	\$1589	\$1649	\$1699	\$1749

80MB (2 1/2") for Powerbook	\$299	See PocketDrive
120MB (2 1/2") for Powerbook	\$419	See PocketDrive
160MB (2 1/2") for Powerbook	\$549	See PocketDrive

### Seagate

	Internal	ZFP+	HP	Internal	ZFP+
1.6GB (5 1/4")	\$2299	\$2449	1.6GB (5 1/4")	\$2459	\$2609
2.1GB (5 1/4")	\$2949	\$3099			
2.4GB (5 1/4")	\$3299	\$3449			

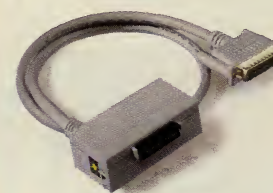
Closeout! Closeout!



## PocketDrive™

Pack it in your pocket, purse or briefcase. PocketDrives offer convenient desktop connection at a great price.

40MB (2 1/2") incl. T-connector	\$299
80MB (2 1/2") incl. T-connector	\$499
120MB (2 1/2") incl. T-connector	\$599
160MB (2 1/2") incl. T-connector	\$729



Optional PocketDock Cable	\$59
Extra T-Connector	\$59
110V Accessory Kit	\$69

## Powerbook Internals

Pack more power in your Powerbook. Comes with brackets and instructions.

80MB Powerbook Internal	\$299
120MB Powerbook Internal	\$419
160MB Powerbook Internal	\$549

## Silverlining™

Hailed as one the most powerful and useful hard disk management software available, Silverlining offers unique features found no where else! Give your hard disk a Silverlining.

Silverlining	\$149
--------------	-------



# and a friendly sales staff.

**FREE!**  
Cleaning Cartridge  
\$19.95 value\*



## Cirrus Optical

Our quiet Cirrus Optical drives offer 128MB removable media storage, compact portability and fast 38ms performance. Includes one free cartridge (\$79 value).

	Internal	External
128MB 3 1/2" Optical Drive with Retrospect	<b>\$1399</b>	<b>\$1499</b>
128MB Optical Disk		<b>\$79</b>

\*While supplies last

## Cirrus Backup

Our Cirrus backup solutions have the power to handle large backup jobs. Includes Retrospect™ and 1 free tape.

	Internal	External
155MB Tape Drive		<b>\$629</b>
600MB Tape Drive	<b>\$799</b>	<b>\$919</b>
1.3-2.0GB DAT	<b>\$1439</b>	<b>\$1559</b>
4-8GB Comp. DAT	<b>\$1549</b>	<b>\$1649</b>

**88C**  
Now Available!



## ZFP Removable

Our 44-88MB removable media drives deliver Syquest technology in a zero footprint case. Includes 1 free cartridge.

44MB Drive	<b>\$599</b>
88MB Drive (88C)	<b>\$719</b>
44MB Cartridge	<b>\$79</b>
88MB Cartridge	<b>\$119</b>

## ExpressDrive™

Here's tight security and portability. La Cie Express Drives offer removable drive convenience and Quantum quality.

ExpressDrive Chassis	<b>\$399</b>
50MB Quantum LPS Drive	<b>\$349</b>
100MB Quantum LPS Drive	<b>\$419</b>
120MB Quantum LPS Drive	<b>\$469</b>
240MB Quantum LPS Drive	<b>\$819</b>



Actual Silverscanner II Image

## Silverscanner II™

One look at the image above should convince you that our next generation Silverscanner can really perform! Superior line art, detailed gray-scale and gorgeous color are the trademarks of this one pass, 24bit, high resolution, feature-packed scanning machine. Just scan it!

### La Cie Silverscanner II

with Color It!  
and Read-It O.C.R. Pro! **\$1599**

with Photoshop  
and Read-It O.C.R. Pro! **\$1999**

with Photoshop, ColorStudio  
and Read-It O.C.R. Pro! **\$2099**

### La Cie Silverscanner **Closeout!**

with Color It!  
and Read-It O.C.R. Pro! **\$999**

with Photoshop  
and Read-It O.C.R. Pro! **\$1349**

with Photoshop, ColorStudio  
and Read-It O.C.R. Pro! **\$1449**

Test us for real and call now for fast, friendly service!

# 800-999-1829



International 503-520-9000 Fax 503-520-9100 6 a.m.-6 p.m. PST Mon.-Fri. VISA, MasterCard, C.O.D. and approved purchase orders accepted\*

\*Call for details on terms, conditions, limited money back guarantee and free offers. System 7.0.1 software included only with certain configurations. ZFP+ Drives do not have switchable termination. Prices do not include shipping and only apply to products shipped within the continental United States. Please contact La Cie for international distribution. Add sales tax where applicable. ZFP, ZFP+, Cirrus, Tsunami, PocketDrive, PocketDock, ExpressDrive, Silverscanner, Silverscan, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. All prices, specifications, terms, descriptions, products and services herein are subject to change without notice or recourse. © Copyright 1992-93 La Cie, Ltd. 8700 SW Creekside Place, Beaverton, OR 97005. Phone: (503) 520-9000, Fax: (503) 520-9100. All rights reserved. Printed in U.S.A.

**BEST!**  
Macworld  
Hard Drive  
under 80 MB

**BEST!**  
Macworld  
Hard Drive  
80-200 MB

**BEST!**  
Macworld  
Hard Drive  
over 200 MB

**BEST!**  
Macworld  
Color Scanner  
SilverScanner

**FCC  
Certified!**

**TOLL-FREE!**  
Technical  
Support

**TOLL-FREE!**  
Customer  
Service

**FREE!**  
Silverlining™

**Switchable  
Termination!**

**Universal  
Power  
Supply!**

**30 Day  
Money Back  
Guarantee\***





800-846-4622

Toll Free: U.S. &amp; Canada

813-886-9534

International Calls

813-881-0634

FAX Line: Open 24 hours

# Mac and MORE

## Your Mail Order SuperStore™

800-846-4622

81(792) 94-4688

(0)3473-76411

800-846-4611

800-945-TECH

813-884-7466

813-886-9534

800-846-1727

**1** Open 7 Days a Week  
 9:00 - 10:00 Mon-Fri  
 10:00 - 6:00 Sat  
 12:00 - 6:00 Sun

813-886-3041 Fax

5414 Beaumont Center Blvd., Ste 210  
Tampa, Florida 33634

### Printers and More...

If you need it in print, the collection of printers that we have to offer can't be beat in performance or price. We offer printers from Apple, GCC, Hewlett-Packard, Texas Instrument, ETC Peripherals, NewGen, and QMS.

#### Texas Instruments

TI microLaser PS17	\$1249
TI microLaser PS35	1369
TI microLaser Turbo	1609
TI AppleTalk Interface Kit	50

#### Apple

Apple Personal LaserWriter LS	\$908
Apple Personal LaserWriter NTR	1610
Apple LaserWriter IIf	1825
Apple LaserWriter IIfg	2246
Apple LaserWriter Pro 600	2048

#### Digital Equipment Corp.

DEC Laser 1152	\$1079
<i>Comes with Level-2 PostScript, toner cartridge, 30-day money back guarantee, and 1-year on-site service warranty.</i>	

**Free On-Site Warranty**

#### GCC

GCC PLP II	\$779
GCC BLP Elite	1149
GCC BLP IIs	Call
GCC WriteMove II	Call

#### Others

ETC Peripherals DataBeam TCP	\$3699
QMS PS-410	1499
QMS PS-815	2999
QMS PS-825	3499
QMS PS-860 HammerHead	4199
QMS ColorScript 210	4499

### Scanners and More...

Scanners helped revolutionize the Desktop Publishing Industry. Here are some of the best values around.

Apple One Scanner	\$944
Microtek Scanmaker II	929
Microtek Scanmaker IIXE	1189
Microtek 1850s Slide Scanner	1599
UMAX UC630	1149
UMAX UC840	1299
UMAX UC1200	2999
UMAX UTA-1 Transparency Option	699

### Networks and More...

If you need networking solutions today, we can provide you with everything you need. From LocalTalk routers to Ethernet Interface Cards, Hubs and Repeaters

ETC DataFlow II (Tk & Tn) or (Tk & 10T)	\$140
ETC DataFlow II Combo3	199
ETC DataFlow LC (Tn & 10T)	199
ETC DataFlow 10BaseT 12-Port Hub	529
ETC DataFlow Repeater	339

### Video and More...

We have a complete collection of Apple and Apple-compatible video products. Call us with your video requirements and we will help you choose a video system that is right for you.

#### Apple

Apple 12" Monochrome Monitor	\$229
Apple 12" RGB Monitor	436
Apple 14" RGB Monitor w/Tilt-Swivel	548
Apple 16" RGB Monitor	1293
Apple 21" RGB Monitor	3239

#### Radius

We carry the full line from this innovative developer of video peripherals.

Radius Monochrome FPD	\$599
Radius Monochrome Pivot Board	259
Radius Precision Color Pivot	995
Radius Color Pivot Board	499
Radius 19" Monochrome Monitor	932
Radius 21" Two-page Color Monitor	3199
Radius 8XJ Video Board	515
Radius 24XK Video Board	859
Radius 24X Video Board	1629

#### SuperMac

SuperMatch 17" MultiMode Monitor	\$1079
20" Color Dual-Mode Trinitron	2519
21" Color Two-Page Monitor	2519
Spectrum/8 Series III	419
Spectrum/8-24 PDQ	829
Spectrum/24 Series IV	829
Spectrum/24 PDD+	1509
SuperMac Video Spigot	CALL

#### RasterOps

20" Hitachi Color Monitor	\$1449
20T Multi-Scan Color Monitor	2299
8XL Video Board	469
8XLI Video Board	924
PaintBoard Li Video Board	825
24MX	1165
24MXQ	1165
24XLI Video Board	1895

#### E-Machines

16" E-Machines T16II	\$1299
19" E-Machines T19II	2345
DoubleColor LC Video Board	409
DoubleColor SX Video Board	369
Futura SX Video Board	489
Futura MX Video Board	815

#### Sony

14" Trinitron Display (1430)	\$639
16" Trinitron Display (1604)	1125

#### Seiko

CM1445 13" RGB Monitor	\$499
CM1760LR 17" Trinitron RGB Monitor	1199

### Hard Drives and More...

Featuring ETC Peripherals' DataDrive family exclusively, Mac and MORE offers you a storage solution that is consistently written-up in MacUser and Macworld as some of the best values around.

#### Quantum

This line of drives offers an incredible value from a proven manufacturer.

Int.	Ext.
ETC DataDrive 420 - ELS	\$176
ETC DataDrive 850 - ELS	201
ETC DataDrive 1270 - ELS	269
ETC DataDrive 1700 - ELS	304
ETC DataDrive 2400 - LPS	400
ETC DataDrive 5250	903
ETC DataDrive 12250	1412

#### Maxtor

ETC DataDrive 120M	\$289
ETC DataDrive 213M - New	399
ETC DataDrive 340M	635
ETC DataDrive 1200M - Panther	1379
ETC DataDrive 1200M	1489

#### Fujitsu

ETC DataDrive 425F	\$849
ETC DataDrive 520F	899
ETC DataDrive 778F	1099
ETC DataDrive 1.2F - 5.25"	1395
ETC DataDrive 1.7F - 5.25"	2295
ETC DataDrive 877T	\$1089
ETC DataDrive 1200T	1399
	1499

#### Hewlett-Packard & Seagate/Imprimis

We carry the complete line!  
 Call Mac and More and get the best value on the complete family of internal and external drives from both of these manufacturers.

### Removables and More...

Consistently chosen by reviewers for its performance, support and value, ETC's removable SyQuest Drives just can't be beat! These low prices include drive, one cartridge, cables, terminator, and ETC Tools 3.0.

ETC DataDrive 44R SyQuest	\$389
ETC DataDrive 88R SyQuest	489
ETC DataDrive 88C SyQuest	589
<i>NEW! Reads and writes to both 44MB and 88MB cartridges. Also comes as a dual drive.</i>	
ETC DataDrive Dual 45/88C SyQuest	859
<i>This Dual SyQuest drive comes with one 45MB cartridge. Add an 88MB cart. for \$99.</i>	
ETC DataDrive 128R-MO	1099
<i>Uses the popular TEAC M-O drive.</i>	
ETC DataDrive 650R-MO	2299

A new low-price for a big M-O drive using the industry standard SONY mechanism.

SyQuest 45MB Cartridge	\$64
SyQuest 88MB Cartridge	99
128MB M-O Cartridge	49
650MB M-O Cartridge	125



### CPU's and More...

Custom configurations are just one of our many specialties. Whether it's something as simple as additional RAM, or you need a bigger hard disk and an accelerator installed, just call us. We build more Apple CPUs to the customer's specifications than anyone else. Just start with these base-CPU's and tell us your needs.

#### Macintosh CPUs

Macintosh Classic II	Macintosh IIfx
Mac Color Classic	Centris 610
Macintosh LCII	Centris 650
Macintosh LCIII	Quadra 700
Macintosh IIsi	Quadra 800
Macintosh IIfx	Quadra 950

To insure that you get the finest system, every CPU that we configure is SNOOPER™ tested to assure proper working order. Ask about our special Snooper/CPU Bundle.

#### PowerBooks

PowerBook 160c	PowerBook Duo 210
PowerBook 165	PowerBook Duo 230
PowerBook 180	Apple Mini- & DuoDock

#### CPU Accessories

ETC PowerGlide Extended Keyboard	\$99
ETC PowerBook ADB Keypad	75

### Systems and More...

Mac and More is an expert at getting the computational power of IBM's AS/400 family to integrate with your Macintosh network.

#### IBM Application System/400

AS/400 9402 Model E02, E04 & E06	Call
----------------------------------	------

#### Andrew NetAccess Gateway Products

NetAccess Macintosh LC	\$3995
NetAccess Macintosh II-family	3995

### Accelerators and More...

#### DayStar Digital

DayStar 33MHz PowerCache w/FPU	\$479
DayStar 40MHz PowerCache w/FPU	649
DayStar 50MHz PowerCache w/FPU	859

#### Radius

Radius Rocket 25i	\$1149
Radius Rocket 33	1999
Radius RocketShare	439

**New Authorizations**  
 To provide you with complete solutions.

**digital**  
 Authorized Reseller



ABATON • ABCOM • ACIUS • ADOBE • ALDIUS • APPLE • APPLIED ENGINEERING • ASANTE • BDT • CLARIS • COSTAR • CURTIS • DANTZ • DATAPRODUCTS • DAYNA • DAYSTAR • DIGITAL • DOVE • E-MACHINES • EMAC • ENVISO • EPSON • ETC PERIPHERALS • FARALLON • FUSION • GAYES • HAYES • HEWLETT-PACKARD • IBM • KENSINGTON KODAK • MAXA • MAXTOR • MICROSOFT • MICROTEK • NEC • NEWER • NEWGEN • PANAMAX • PASTEL • PROMETHEUS • PSI • QMS • QUANTUM • QUARK • RADIUS • RASTEROPS • SEAGATE • SEIKO • SHIVA • SIGMA DESIGN • SONY • SUPERMAC • SYQUEST • SYMANTEC • SYQUEST • TEXAS INSTRUMENTS • TOSHIBA • UNIMAX • WACOM



# We Rent and Lease Computers!

One of the biggest resellers of Macintosh systems in the US now rents Macs as well. Mac and MORE has competitive prices. Call us with your system requirements and we'll put together a rental package that is just right for you. No other rental company can provide you with the level of service and support that Mac and MORE can. And if you get so attached to the system you're renting, just call us—we'll sell it to you.

# Double Your Macintosh Warranty!

Double up your warranty for as little as \$10 a month with Club 24. In addition to our low repair or replacement turnaround; free overnight shipping both ways; and technical support via an exclusive toll-free telephone line for Club 24 Members. Call now for details!

## Mac and MORE Specials for March

call for your free Catalog

ask for our FAX specials

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>1</b> <b>\$389**</b> <b>ETC DataDrive 45R SyQuest Removable</b> The most popular removable on the market. All drives come with one cartridge! 	<b>2</b> <b>\$589**</b> <b>ETC DataDrive 88C SyQuest Removable</b> This new SyQuest drive can read and write both 45 & 88 removable cartridges. 	<b>3</b> <b>\$1,498**</b> <b>17" Multi-Mode &amp; Spectrum 8 series III</b> The mainstay for most desktop publishers, this 8 bit video package is a real winner! 	<b>4</b> <b>\$185**</b> <b>CoStar LabelWriter II</b> 	<b>5</b> <b>\$4,199**</b> <b>QMS 860 HammerHead 11x17 LaserWriter</b> Provides PostScript output on tabloid size paper at an amazing 8 pages per minute. 	<b>6</b> <b>\$849**</b> <b>Fujitsu 425 MB Internal Hard Disk</b> One of the fastest drives on the market. External model is only \$909. 	<b>7</b> <b>\$1,089**</b> <b>TOSHIBA 877 Megabyte External Hard Disk Drive</b> A reliable drive with a lot of storage room at a very good price. Features ETC Tools. 
<b>7</b> <b>\$489**</b> <b>ETC SyQuest 88R DataDrive</b> A 4-mice rating from MacUser has made this the best selling ETC drive! 	<b>8</b> <b>\$589**</b> <b>ETC SyQuest Specials</b> The #1 removable media drive is available as an internal kit for the new CPU's or in dual configurations. 	<b>9</b> <b>\$99**</b> <b>ETC PowerSlide Extended Keyboard</b> 	<b>10</b> <b>\$1125**</b> <b>SONY 1604 16-inch Trinitron Monitor</b> Using the Trinitron tube, the SONY 1604 offers a razor sharp image at a great price. 	<b>11</b> <b>\$1,249**</b> <b>TEXAS INSTRUMENTS</b> 	<b>12</b> <b>\$1,989**</b> <b>radius VideoVision</b> Let your imagination run wild when you capture video for QuickTime movies or output to a VCR tape, all at 24 bit. 	<b>13</b> <b>\$201**</b> <b>Quantum 85MB Internal Hard Disk From Quantum</b> From the new ELS family, this economical drive is our best seller. External for \$260. 
<b>15</b> <b>\$489**</b> <b>SII Seiko Instruments CM-1445 14" Monitor</b> Using Trinitron technology, this 14-inch RGB monitor is over a \$500 less expensive than Apple! 	<b>16</b> <b>\$959**</b> <b>DAYSTAR 50MHz PowerCache with Math Coprocessor</b> Drop one of these in your Macintosh and race past everyone else. 	<b>17</b> <b>\$1,529**</b> <b>RasterOps MoviePak</b> This daughterboard for the S/X is designed for full motion video with realtime JPEG compression/decompression. 	<b>18</b> <b>\$465**</b> <b>E-Machines PowerLink Presenter</b> The only portable dock that turns your PowerBook Duo into a presentation machine! 	<b>19</b> <b>\$639**</b> <b>Sigma Designs Power Portrait</b> A three star winner from MW Labs, this 15-inch portrait monitor plugs into your SCSI port. 	<b>20</b> <b>\$2,999**</b> <b>UMAX UC-1200 1200 dpi Color Scanner</b> 	<b>21</b> <b>\$399**</b> <b>Snooper 2.0 The Hardware Diagnostic for the Macintosh</b> The next time you see a "Sad Mac" on your screen or your Mac's performance isn't up to par, diagnose the performance problem. SNOOPER is very easy to use and includes complete performance benchmarking plus an emergency diagnostic boot disk and more! 
<b>22</b> <b>\$629**</b> <b>TOSHIBA New and Fast CD-ROM Toshiba 3401-E</b> This was the <i>hottest</i> CD-ROM at Macworld in San Francisco. 200msec access. 	<b>23</b> <b>\$75**</b> <b>ETC DataPad Numeric Keypad</b> 	<b>24</b> <b>\$1,079**</b> <b>digital DEClaser 1152</b> High performance at the lowest possible price! PostScript 2, on-site service and a 30 day return policy.* 	<b>25</b> <b>\$1,989**</b> <b>radius Rocket 33 33MHz Accelerator</b> With RocketShare, this accelerator is like having a 2nd Mac on your desktop. 	<b>26</b> <b>\$129**</b> <b>Snooper 2.0 The Hardware Diagnostic for the Macintosh</b> The next time you see a "Sad Mac" on your screen or your Mac's performance isn't up to par, diagnose the performance problem. SNOOPER is very easy to use and includes complete performance benchmarking plus an emergency diagnostic boot disk and more! 	<b>27</b> <b>\$399**</b> <b>ETC DataPress Hardware Data Compressor</b> The ETC DataPress is the only hardware data compressor for your Mac. It is 7 to 10 times faster than software compression alone. Plus, it is the first peripheral to expand your SCSI bus. Now you can put more than 7 SCSI devices on one Mac. Need more details? Call 	<b>28</b> <b>\$1169**</b> <b>Super Specials!!!</b> On a budget? The "quick-draw" GCC PLP II is one of our best sellers. Need Postscript? The BLP Elite is the way to go. 

Terms and Conditions: Payment: Mac and MORE accepts Visa, MasterCard, Discover, COEs, and Purchase Orders. We will ship COEs with pre-authorized checks. Corporate and School Purchase Orders are Net-15 for orders over \$2500 only, and are subject to credit approval. \*Warranties: All warranties on Macintosh or Apple brand products sold by Mac and MORE will be honored by Mac and MORE or its authorized agents only. Mac and MORE does not guarantee compatibility. Like all other Mail-Order resellers, Mac and MORE is not an authorized Apple reseller. All other manufacturers warranties are honored by Mac and MORE at a minimum 15% restocking fee. Call for an RTS before returning. Returns must be in original packaging with software seals unbroken. Shipping: For advertised items totaling over \$1000 we will ship to destinations in the continental US at no charge. Some large items may not be included in this offer. Ask for details when ordering. \*Terms, Conditions, and Prices are subject to change without notice or obligation. All products sold by Mac and MORE are new. We do not sell used equipment. © 1993 Mac and MORE, Inc. All rights reserved. 38863 \*Prices, Promotions, Hours of Operation, Terms and Conditions may vary for these offices. Please contact them directly for details.

## System Packages For March

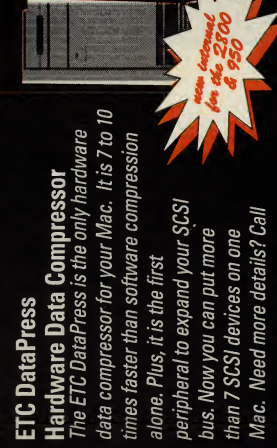
All of our packaged systems come complete. There are no hidden extras to purchase. Use them as a base to build the system of your dreams. And don't forget to ask about our extended service program—Club 24!

**PowerBook Duo 210 Travel Package**  
 4MB of RAM, 80MB hard disk drive, Kodak Portable AC Printer, Battery, Portable AC Battery Charger, and all required cables.  
**\$2199**  
 We can add an E-Machines PowerBook Presenter Dock for an additional \$449!

**Mac Ilvx Home Business Package**  
 4MB of RAM, 240MB hard disk drive, 80MB external hard disk, ETC extended keyboard, mouse, and all required cables. **Save \$350!**  
 Don't forget to add a monitor of your choice!

**Mac Quadra 950 Designer Package**  
 8MB of RAM, 230MB hard disk drive, ETC DataPress, 16-inch Sony color monitor, ETC extended keyboard, microphone, mouse, and cables.  
**\$7052**  
 Have us install an internal 45MB SyQuest drive in this package for an additional \$429!

## Double Your Disk and Expand Your SCSI Bus



Mac and MORE inc.





**SAME DAY SHIPPING!**  
Any order placed by  
3p.m. PST Monday thru Friday  
will ship that same day.

**800-392-5818**  
**TO PLACE AN ORDER**

**INTERNATIONAL (714)572-5350**  
**24-HOUR FAX (714)572-5363**  
Office Hours: M-F 6:00AM-6:00PM PST  
Sat 9:00AM-1:00PM PST  
5761 E. La Palma Ave • Suite 182 • Anaheim CA 92807

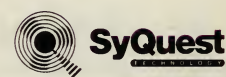
## Quantum

"An Apple Authorized Brand"

**WE SHIP ON SATURDAYS**  
by Federal Express  
and Airborne.\*  
\*If order is placed by 1p.m. PST.

Formatted Capacity	Speed	Size	Internal	External
ELS 42mb	19ms	3.5"TH	\$175	\$235
ELS 85mb	17ms	3.5"TH	\$199	\$259
ELS 127mb	17ms	3.5"TH	\$259	\$319
ELS 170mb	17ms	3.5"TH	\$299	\$359
LPS 105mb	10ms	3.5"TH	\$239	\$299
LPS 240mb	10ms	3.5"TH	\$399	\$459
LPS 525mb	10ms	3.5"TH	\$899	\$959
Pro 700mb	10ms	3.5"TH	\$1179	\$1239
Pro 1.05gb	10ms	3.5"HH	\$1339	\$1399
Pro 1.22gb	10ms	3.5"HH	\$1539	\$1599
*GO•80mb	16ms	2.5"PB	\$299	\$399
*GO•120mb	16ms	2.5"PB	\$399	\$499
*GO•160mb	16ms	2.5"PB	\$499	\$599

TWO year Warranty. \*ONE year Warranty on GO drives.  
FWB™ HDT Formatting Software Included.



All Syquest cartridges are  
bundled with DIVA VideoShop  
— a \$599 value —  
**FREE!**

Model	
External SyQuest 44mb (*One Cartridge Inc.)	\$389
External SyQuest 88mb (*One Cartridge Inc.)	\$489
External SyQuest 88mb C** (*One Cartridge Inc.)	\$589
Internal 44mb SyQuest (for Quadra 900&950)	\$349
Internal 88mb SyQuest (for Quadra 900&950)	\$469
Internal 88mb C SyQuest (for Quadra 900&950)	\$559
External SyQuest Dual 44mb (*One Cartridge Inc.)	\$725
External SyQuest Dual 88mb (*One Cartridge Inc.)	\$895
External SyQuest Dual 44/88mb (*One 44 & One 88 Cartridge)	\$895
External SyQuest Dual 88C mb (*One Cartridge Inc.)	\$1075
External SyQuest Dual 44/88C mb (*One 44 & One 88 Cartridge)	\$999
SyQuest 44mb Cartridge/10 Pack	\$63/\$620
SyQuest 88mb Cartridge/5 Pack	\$97/\$480

All SyQuest Drives come with FWB™ HDT Formatting Software. SyQuest  
carries a TWO year Warranty on Drives and ONE year on Cartridges.  
\* READS AND WRITES 44 AND 88 CARTRIDGES. Does not format 44 cartridges.

## TOSHIBA

Formatted Capacity	Speed	Size	Internal	External
877mb	12.5ms	3.5"HH	\$1039	\$1099
1.23gb	12.5ms	3.5"HH	\$1399	\$1459
213mb <b>NEW!</b>	12ms	2.5"PB	\$649	\$749
<b>CD-ROM</b>				
600mb <b>NEW!</b>	200ms	3.5"HH	\$639	\$699

Toshiba carries a **THREE** year Warranty on  
drives. **ONE** year Warranty on CD Rom. FWB HDT  
Formatting Software Included.

## MAGNETO OPTICAL DRIVES

### TEAC

Model	Speed	Size	External
128mb	45ms	3.5"HH	\$989
128mb cartridges (Tosoh)			\$39

### RICOH

Model	Speed	Size	External
128mb	45ms	3.5"HH	\$1075
650mb	28ms	5.25"FH	\$2375
128mb/650mb Cartridge			\$39/95

### Maxtor®

Model	Speed	Size	External
Tahiti II	35ms	1.0gb	\$3195
1.0gb Optical Glass Cartridge			\$225

All MO drives come with FWB HDT software,  
ONE MO cartridge and have a ONE year Warranty.

## TAPE BACK-UP DRIVES

### ARDAT

Model	External
2.0gb	\$1185
4.0gb - 8.0gb HC	\$1385
4.0gb - 8.0gb HC Turbo	\$1485
90m / 60m Tape	\$19/\$16

### TEAC

Model	External
150mb Tape Backup Drive	\$485
600mb Tape Backup Drive	\$685
600mb / 150mb Tape Cassette	\$25/\$20

All tape backup drives come bundled with FREE  
Retrospect V.2.0, one tape and have a ONE year Warranty.

**CHECK  
US  
OUT!**

**BEST  
PRICES  
ANYWHERE**

## Seagate

Unformatted Capacity	Speed	Size	Internal	External
1.2gb	11ms	3.5"HH	\$1439	\$1499
1.2gb	15ms	5.25"FH	\$1349	\$1449
1.6gb	15ms	5.25"FH	\$1699	\$1799
2.1gb	13ms	5.25"FH	\$1899	\$1999
1.6gb	11ms	5.25"FH	\$1949	\$2049
2.4gb	11ms	5.25"FH	\$2799	\$2899
3.4gb	11ms	5.25"FH	\$3799	\$3899



## MICROPOLIS

Formatted Capacity	Speed	Size	Internal	External
698mb	10ms	3.5"HH	\$1285	\$1345
1.05gb	10ms	3.5"HH	\$1635	\$1695
2.1gb	12ms	5.25"FH	\$2695	\$2795

Fast SCSI-2 Drives. **FIVE** year Warranty.  
FWB™ HDT Formatting Software Included.

## CONNER

"An Apple Authorized Brand"

Formatted Capacity	Speed	Size	Internal	External
85mb	17ms	3.5"TH	\$195	\$255
120mb	19ms	3.5"TH	\$255	\$315
170mb	13ms	3.5"TH	\$285	\$345
212mb	12ms	3.5"TH	\$365	\$425
540mb	12ms	3.5"HH	\$885	\$945
545mb <b>NEW!</b>	10ms	3.5"TH	\$899	\$959

TWO year Warranty.  
FWB™ HDT Formatting Software Included.

## FUJITSU

Formatted Capacity	Speed	Size	Internal	External
513mb <b>SPECIAL!</b>	9ms	3.5"HH	\$899	\$959
1.07gb <b>NEW!</b>	9ms	3.5"HH	\$1739	\$1799
1.07gb	15ms	5.25"FH	\$1389	\$1489
1.75gb	15ms	5.25"FH	\$2289	\$2389
2.05gb	12ms	5.25"FH	\$2499	\$2599

**FIVE** year Warranty.  
FWB™ HDT Formatting Software Included.

## Maxtor®

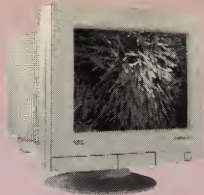
Formatted Capacity	Speed	Size	Internal	External
120mb	15ms	3.5"TH	\$239	\$299
213mb	15ms	3.5"TH	\$349	\$409
340mb	15ms	3.5"HH	\$599	\$659
535mb	12ms	3.5"HH	\$955	\$1015
540mb <b>NEW!</b>	9ms	3.5"HH	\$1055	\$1115
1.02gb <b>NEW!</b>	9ms	3.5"HH	\$1655	\$1715
1.24gb	13ms	5.25"FH	\$1375	\$1475
1.47gb	13ms	5.25"FH	\$1675	\$1775

TWO year Warranty on 3.5" Drives and **FIVE** Years on  
5.25" Drives. FWB™ HDT Formatting Software Included.



# NEC

MultiSync 3FGx - 15" Monitor	\$615
MultiSync 4FG - 15" Monitor	\$735
MultiSync 5FG - 17" Monitor	\$1305
MultiSync 6FG - 21" Monitor	\$2355
FG8x 8-bit board	\$645
FG24x 24-bit board	\$1205
FG24xp 24-bit board	\$505
CD-Express	\$399
CD-ROM CDR-74	\$625
Multi-Media Gallery	\$805
SilentWriter 95F Printer	\$1125
SilentWriter 95FX Printer	\$1855
SilentWriter 97F Printer	\$1755
SilentWriter 97FX Printer	\$2199
ColorMate PS-40 Color Printer	\$4399



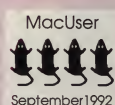
NEC MultiSync 5FG Monitor  
• 17" Multi-Frequency Color Monitor  
• AccuColor Control System  
• Up to 1024x768 resolution



**\$1205\***  
\*After \$100.00 Mail-In Rebate



NEC SilentWriter Model 95f Laser Printer  
• PostScript Level 2  
• Envelope feeder and cassette included  
• 3-year on-site warranty (Limited time offer)



**\$1125\***  
\*After \$250.00 Mail-In Rebate

— Both offers end 3/31/93 —

## RasterOps®

21" Mono/Gray-Scale Monitor	\$999
21" Color Hitachi	\$2599
20" Color Trinitron MultiScan	\$2149
20" Color Hitachi MultiScan	\$1349
24 STV Interface	\$779
24 SX Interface	\$619
8 XLI Interface	\$929
Paintboard 24	\$1549
Paintboard LI	\$849
CorrectPrint 300	\$6949

## radius

PrecisionColor Display/20 or 20s	\$2399
PrecisionColor 19	\$2099
PrecisionColor Pivot	\$949
PrecisionColor 24XK Interface	\$839
PrecisionColor 24XP Interface	\$509
PrecisionColor 8X Interface	\$759
VideoVision (Basic)	\$1699
VideoVision (Presentation)	\$2019
Rockets 25i	\$1199
Rockets 33	\$1949
RocketShare	\$419
SCSI-2 Booster	\$259

## SUPERMAC™

SuperMatch 21" Color Monitor	\$2499
SuperMatch 17" Color Monitor/Multimode	\$1179
Two-Page 21" Platinum Monitor	\$999
SuperMatch 17T Color Trinitron Monitor	\$1099
Thunder/24	\$2349
Spectrum 24 PDQ Plus	\$1549
Thunder/8	\$1169
Spectrum/8 • 24 PDQ	\$839
Spectrum 24/Series IV <b>NEW!</b>	\$849
VideoSpigot Nubus	\$379
Spigot and Sound Pro	\$1179
Digital Film	\$4669

## SONY

1302 - 14" Color Multiscan	\$599
1430 - 14" Color Trinitron	\$669
1320LC - 14" Color Trinitron for LC	\$429
1604S - 16" Color Trinitron	\$1089

\*Includes MAC Adaptor. Quadra compatible.

## NEW LINE! SIGMA DESIGNS

Power Portrait 15" w/anti-glare	\$619
ColorMax 15"	\$739
ColorMax 20H - 20" Hitachi	\$1639
ColorMax 20T - 20" Trinitron	\$2049

## hp HEWLETT PACKARD

Deskwriter	\$429
Deskwriter 550-C	\$779
LaserJet 4M	\$1999

\*Prices include cable.

## GCC TECHNOLOGIES

WritImpact 24-Pin	\$499
PLPII 1mb/4ppm/300dpi	\$799
PLPIIS 1mb/8ppm/300dpi	\$1099
BLPII 2mb/4ppm/300dpi	\$1519
BLPIIS 2mb/8ppm/300dpi	\$1769
BLPIIS 4mb/8ppm/300dpi	\$2199
BLP Elite 2mb/4ppm/300dpi	\$1179
BLP Elite 2mb/8ppm/300dpi	\$1429
WideWriter 360 512k/360dpi	\$1429
SelectPress 600 8mb/8ppm/600dpi	\$3899

## UMAX®

UC - 1200S with Adobe PhotoShop™ v2.0.1	\$2999
UC - 840 with PhotoShop™ v2.0.1	\$1299
UC - 630 with Adobe PhotoShop™ v2.0.1	\$1099
Automatic Document Feeder	\$489
Transparency / Slide Scanner Option	\$709

## Robotics

Mac&Fax SPORTSTER Modem 14.4bps, Send/ Receive FAX Modem	\$315
WorldPort FAX	\$459

## ASANTÉ

MC3NB - Thick/Thin/10 Base T, 64k	\$199
MC+IIE64 - Thick/Thin, 64k	\$149
MC+IIE64 - Thick/10 Base T, 64k	\$149
MC+LCII - Thin/10 Base T, FPU Socket	\$199

\* We carry the full line of Asante Products.

## DAYSTAR DIGITAL

Turbo 040 25 MHz	\$1109
Turbo 040 33 MHz	\$1369
Fastcache Turbo 25-128k cache	\$259
Fastcache Turbo 33-128k cache	\$345
FastCache Quadra (700 & 900) - 128K	\$249
FastCache Quadra (700, 900 & 950) - 128K	\$389
PowerCache 33MHz OR w/ FPU	\$385/\$475
PowerCache 40MHz OR w/ FPU	\$555/\$645
PowerCache 50MHz OR w/ FPU	\$735/\$865
PowerCache Adapters*	\$42

\* Additional on all PowerCache cards except for Ilic

## MAC SYSTEMS

Classic Color 4/80 <b>NEW!</b>	\$1429
LC III 4/80 - 4/160 <b>NEW!</b>	\$1299/\$1439
IIIX 4/80 - 4/230 - 5/80 w/CD-Rom	\$1729/\$2059/\$2129
Centris 610 4/80 w/o Ethernet <b>NEW!</b>	\$1689
Centris 650 4/80 w/o Ethernet <b>NEW!</b>	\$2449
Quadra 950 8/0	\$4799
Quadra 800 8/230 <b>NEW!</b>	\$4049
Apple Adjustable Keyboard <b>NEW!</b>	\$219
Apple 14"/16" Color Monitor	\$529/\$1279
Color One Scanner <b>NEW!</b>	\$1299
StyleWriter II <b>NEW!</b>	\$339
Apple LaserWriter Pro 600/630	\$2009/\$2419
Apple LaserWriter IIF/IIG	\$1779/\$2199

## POWERBOOK/DUO ACCESSORIES

All the extras for upgrading your PowerBook or Duo...

PowerBook Cables (HDI 30-25 or 50)	\$35
Radius PowerView for Powerbooks	\$499
External Battery Recharger for PowerBook	\$149
PowerPad-Sophisticated Circuits	\$79
PowerBook Battery	\$79
Auto Power Adapter	\$89
GCC WriteMove II Printer	\$499
AE AxCell (Cellular Phone Interface)	\$270
AE DataLink PB	\$473
AE Powerbook Auto Adapter	\$66

### Duos:

Duo 210/230 Memory 4mb/8mb	\$295/\$545
Duo Floppy Adapter	\$135
HDI-20 Ext. 1.44mb Floppy Drive	\$199
Duo A/C Adapter	\$65
Duo Rechargeable Battery	\$69
Duo Dock	\$1079
Apple Mouse	\$79

### Carrying Cases:

I/O Design Ultimate SL/EX - nylon	\$69/\$79
-----------------------------------	-----------

Check out our GO Drives in the Quantum Section!

## MACINTOSH SIMMS

1x8/2x8/4x8/16x8 @ 80ns	\$31/\$61/\$125/\$525
<b>Quadra 700/950</b>	
4x8/16x8	\$125/\$525
<b>Powerbook 140/170</b>	
4mb/6mb/8mb	\$179/\$255/\$355
<b>Powerbook 160/180</b>	
4mb/6mb/8mb/10mb	\$225/\$295/\$395/\$445
<b>Duo 210/230</b>	
4mb/8mb	\$299/\$499
<b>PC 1x9/4x9</b>	\$39/\$139
<b>NEW MACINTOSH SIMMS</b>	<b>\$CALL</b>

## NEW LINE! TWINCOM

24/96 PowerTwin - Internal for Powerbooks	\$131
24/96 Commuter - External	\$136
24/96 FaxNet - External	\$318
14.4 Pro- External	\$340
14.4 MacVoyager - Pocket External	\$374
14.4 FaxNet - External	\$522
14.4 PowerTwin - External	\$568

Two year warranty.

## NEW LINE!



3.5 Mac Drive (External 800K)	\$211
3.5 Mac Drive (External 1.44)	\$225
QuadraLink (4 Port Serial for Mac IIs)	\$198
TransWarp LC - 25MHz or w/FPU	\$360/\$458
TransWarp LC - 33MHz or w/FPU	\$405/\$507
TransWarp LC - 40MHz or w/FPU	\$540/\$674
TransWarp LC - 50MHz or w/FPU	\$720/\$863

One year warranty.

## NEW LINE! WACOM

6x9 Standard Tablet	\$462
12x12 Standard Tablet	\$660
12x12 ElectroStatic Tablet	\$726
12x18 Standard Tablet	\$990
12x18 ElectroStatic Tablet	\$1058

- International inquiries welcomed.
- We also speak Spanish, German and French.
- Toll-Free Customer Technical Support.
- Fortune 500, Educational and Government P.O.'s welcomed upon credit approval.
- Mac & PC does not guarantee product compatibility.
- Prices, Terms and Availability subject to change without notice.
- Product names in this advertisement are ™ or ® of their respective companies.

- All returns require an RMA number and are subject to restocking fee.
- C.O.D., Cashiers, Company & Personal Checks accepted upon credit approval.



Apple/Macintosh products have a ONE year warranty only through Mac&PC USA, Inc. We are not an Apple Authorized Dealer.

TO PLACE AN ORDER, PLEASE CALL US AT THIS NUMBER:

**(800) 392-5818**

FOR ALL OF YOUR PC NEEDS, CALL:  
( 8 0 0 ) 3 9 2 • 5 8 4 0



# WE'VE PUT ON THE OPTICAL TE



## SPIN CYCLONE 3.5 OPTICAL DRIVE

We've accomplished two firsts. The first is that this is our first optical drive. The second first, even more exciting than the first first (maybe we should have put the second first first), is that this is the first second-generation optical drive for under a thousand bucks. It uses ISO standard 128 MB 3.5 cartridges, so you can use them with other drives. And it comes with our premium Cyclone small-footprint, "brick" enclosure. Plus a two year warranty. So, you ask, "Should I try it first?" In a second.

**Cyclone 3.5 Optical Drive**  
Extra Cartridges: \$35

**\$999**

## SPIN DOUBLE SPEED CD ROM DRIVE

If you guessed that by spinning a CD at twice the speed, the Toshiba XM 3401 drive mechanism inside this Spin CD ROM drive can access data twice as fast, that expensive college education isn't going to waste. In fact, it breaks the 200 msec access time barrier. And offers sustained transfer rates of 330 KB/sec. Other CD ROM drives are left with their jaws hanging wide open. This drive is your best choice if you're running Quicktime® movies, photo CD, or multi-media apps. Pretty smart.

**Spin Double Speed CD ROM Drive (External only)** **\$499**

## THE DEC DSP-3105 1-GIG DRIVE

Introducing the DEC DSP-3105 1-gigabyte drive. This Eddy award-winning monster moves like Ricochet Rabbit on double espresso. It's the world's fastest 3.5 inch drive. Thanks, in part, to a 5400 RPM spindle speed and a whopping 512K drive cache. With our minimum-footprint Cyclone™ enclosure, and a great price, and 5-year warranty, no one can touch it for value. Says MacUser: "It's a dream drive."

<b>Cyclone enclosure</b>	<b>\$1799</b>
<b>Classic-style footprint enclosure</b>	<b>\$1749</b>
<b>Internal</b>	<b>\$1699</b>



## CYCLONE DAT DRIVES

If you're looking for DAT, you'll love dis. Cyclone DAT drives. They feature the zephyr-like Wang DAT drive mechanism - the industry standard for reliability. Our own Cyclone small-footprint chassis. And a price that won't dis you. Our standard Cyclone DAT drive has a 2.0 GB capacity. The compression model, up to 5 gigs. Both come with Dantz™ Retrospect back-up software, and a 90-meter DAT tape, free. Dat's all you need.

<b>Cyclone Standard DAT</b>	<b>\$1199</b>
<b>Cyclone Compression DAT</b>	<b>\$1349</b>

# ORDER DIRECT. CALL:



# A NEW SPIN LATEST TECHNOLOGY.



## SYQUEST 5110C 88/44 DRIVE

You want to upgrade your removable drive to 88 megs, but you've got a shelf full of old 44s staring you in the face. You have two options. One, use the old cartridges as coasters at geek cocktail parties. Or two, buy the new Spin Syquest 5110C drive that reads and writes both 44 and 88 meg cartridges. True, this drive does not format 44 MB cartridges, but we have a way around that – pre-formatted 44s.

Syquest 5110C 44/88 Drive	\$589
Syquest 88 MB Removable	\$489
Syquest 44 MB Removable	\$389
<b>Syquest Media</b>	
Unformatted 44 MB	\$61
Unformatted 88 MB	\$99
Formatted 44 MB	\$85
Formatted 88 MB	\$139



## ZERO FOOTPRINT DRIVES

We've gotten letters lately – mostly in crayon – from a few folks asking why we call these drives “zero footprint” when they obviously exist in three dimensions and take up space. We'd like to point out that when placed under your Plus or Classic or SE it takes up no more space than the computer already does. Zero. Neat trick, huh? Our sturdy zero-footprint drives feature a number of different mechanisms from makers like Conner, Quantum, Toshiba. Check the matrix below for the capacity you need. And please, put down that crayon.

Capacity (MB)	Model Number	Average Access Time (msec)	Transfer rate (K/sec)	MTBF (Hours)	MFG warranty (months)	Internal Drive Price	External Drive Price	Cyclone Drive Price
<b>Conner</b>								
85	CP-30080E	16	1300	150000	24	\$199	\$269	
120	CP-30100	16	1300	150000	24	\$269	\$339	
170	CP-30170E	16	1400	150000	24	\$279	\$359	
213	CP-30200	15	2000	150000	24	\$349	\$419	
<b>Quantum</b>								
85	ELS 85S	17	1800	250000	24	\$199	\$269	
127	ELS 127S	17	1800	250000	24	\$269	\$339	
170	ELS 170S	17	2000	250000	24	\$299	\$369	
240	LPS 240S	16	2300	250000	24	\$399	\$469	
80 (Pwrbk)	GRS-80	17	1900	150000	12	\$349		
<b>Toshiba</b>								
210 MB (Pwrbk)	MK-2224	12	1800	150000	12	\$549		
1.2 GB	MK-538	12	2800	250000	36	\$1149	\$1199	\$1249
<b>DEC</b>								
1.05GB	DSP-3105	9.5	2600	250000	60	\$1699	\$1749	\$1799
<b>Seagate</b>								
456MB	ST-3550N	12	3500	250000	36	\$849	\$899	\$949
1.05GB	ST-11200N	10.5	3200	200000	60	\$1199	\$1249	\$1299
<b>Fujitsu</b>								
520MB	M2624FA	9	2700	200000	60	\$899	\$949	\$999
1.06 GB	M2694FA	9	2800	200000	60	\$1549	\$1599	\$1649

Spin, The Spin tornado and Cyclone are trademarks of Spin Peripherals, Inc. All other trademarks are the property of their respective holders.

## 30 DAYS TO DECIDE.

If you're not satisfied, neither are we (we're referring, of course, to Macintosh peripherals only). That's why every Spin product comes with a 30-day money back guarantee. Test-drive any Spin product. Give it a real workout. If you're not happy, return it within 30 days for a refund. Was that good for you?

## MORE THAN JUST A LOW PRICE.

Flip through these pages (not right now, it's just a figure of speech), and you'll see a lot of low prices. The difference with Spin is that you get more. And not just a little more. We include many free things that others charge you for. Like a double-shielded SCSI cable. External terminator. A power supply designed for constant use. Not to mention our own Spin Disk Utilities with free upgrades for a year, system software, and unlimited tech support as long as you own a Spin drive. We aim to please. Call one of the other guys and ask what they'll give you for free. The cardboard box? The owner's manual? Then call us back.



381 Elliot Street, Newton, MA 02164-1162

Phone: 1-617-965-9882 Fax: 1-617-965-6257

# 1-800-466-1200







# 800 • 436 • 8207

• TOP PRODUCTS, PRICES AND SERVICE •

◀◀ DIRECT SALES & SUPPORT  
INTERNATIONAL  
**406 • 256 • 5806**  
FAX NUMBER  
**406 • 256 • 5816**

## Hard Drives

### QUANTUM

Unformatted Capacity	Access Time	Internal	External
GO•Drive 2.5" Hard Drive (All Quantums - 2 year Warranty)			
80 mb	17 ms	\$319	\$419
120 mb	17 ms	\$449	\$549
160 mb	17 ms	\$499	\$599
ELS Series (3.5" Low Profile and Low Power Drives)			
42 mb	19 ms	\$175	\$229
85 mb	17 ms	\$214	\$268
127 mb	17 ms	\$289	\$339
170 mb	17 ms	\$309	\$369
LPS Series (3.5" Low Profile and Low Power Drives)			
240 mb	10 ms	\$439	\$479
525 mb	10 ms	\$919	\$979
Prodrive Series (3.5" Half Height Drives)			
700 mb	10 ms	\$1179	\$1239
1.0 Gig	10 ms	\$1339	\$1399
1.2 Gig	10 ms	\$1548	\$1579

### SEAGATE

3.5" Half Height Drives (1 year Warranty)			
1.2 Gig	10.5 ms	\$1489	\$1549
Wren and Elite Series (5.25" Full Height Drives)			
Wren 7 1.2 Gig	15 ms	\$1369	\$1475
Wren 8 1.6 Gig	15 ms	\$1709	\$1809
Wren 9 2.1 Gig	12.5 ms	\$1929	\$2029
Elite 1 1.6 Gig	11.5 ms	\$1989	\$2089
Elite 2 2.4 Gig	11 ms	\$2868	\$2968
Elite 3 3.4 Gig	11 ms	\$3909	\$4009

### TOSHIBA

3.5" & 2.5" Disk Drives (2 year Warranty)			
2.5" 213 mb	12 ms	\$678	\$778
3.5" 830 mb	12 ms	\$1029	\$1089
3.5" 1.2 Gig	12 ms	\$1389	\$1489

### CONNER

3.5" Disk Drives (2 year Warranty)			
42 mb LPS	17 ms	\$178	\$228
85 mb LPS	17 ms	\$198	\$248
120 mb LPS	12 ms	\$258	\$308
170 mb LPS	12 ms	\$279	\$338
212 mb LPS	9 ms	\$358	\$419
540 mb	8.5 ms	\$889	\$948

### FUJITSU

3.5" & 5.25" Disk Drives (5 year Warranty)			
3.5" 330 mb	9 ms	\$838	\$888
3.5" 520 mb	9 ms	\$878	\$958
3.5" 1.1 Gig	8.5 ms	\$1589	\$1609
5.25" 1.2 Gig	11.5 ms	\$1289	\$1458
5.25" 2.06 Gig	11.5 ms	\$2119	\$2219
5.25" 2.4 Gig	11.5 ms	\$2448	\$2548

## Scanners

### MICROTEK

Model	Price
Includes free software	
Scanmaker II - Color w/free Photoshop LE	\$948
Scanmaker IIXE - Color w/free Photoshop	\$1248

### UMAX

Includes free software	
UC630 - Color w/free Photoshop	\$1078
UC1200s - Color w/free Photoshop	\$2948
UC840 - Color w/free Photoshop	\$1248
Transparency Unit	\$698
Auto Document feeder	\$398
UG600 - Greyscale w/free Typereader	
OCR, OFOTO & Publish It	\$848

## Accelerators

### DAYSTAR DIGITAL

Model	Without FPU	with FPU
33 MHZ Powercache	\$379	\$475
40 MHZ Powercache	\$549	\$645
50 MHZ Powercache	\$719	\$859
Powercache Adapter		\$40
Equalizer LC	\$169	\$239
Fast Cache Ilsi	\$279	\$349
Fast Cache Ilci		\$215
Fast Cache Quadra		\$259
Fast Cache Q 950		\$399
33 MHZ Turbo 040		\$1429
Fast Cache Turbo 33-12		\$339

## Modems

### PROMETHEUS

Model	Price
Ultima Home Office	
ext 14.4/14.4SR Fax w/ V.42 bis & voice	\$398
Promodem 144i Internal for Powerbook	
14.4/14.4SR Fax w/ V.42 & V.42 bis	\$278
Promodem 144e	
ext 14.4/96SR Fax w/ V.42 & V.42 bis	\$278
Promodem 24e	
ext 24/96SR Fax w/ V.42 & V.42 bis	\$128
Promodem Mini 2400	
2400 BPS mini, data only	\$79

### ZOOM TELEPHONICS

All units come with Microphone LT Software		Price
Faxmodem PBK for Internal Powerbook		
96/48 SR Fax w/2400 BPS Modem		\$99
Faxmodem PKT Portable		
96/48 SR Fax w/2400 BPS Modem		\$109
Faxmodem FXV		
V42 bis/MNP5/2400 BPS, 96/96 SR Fax		\$149
Faxmodem FXV.32		
V.32 bis, 14.4 data & fax, V.42 bis/MNP5		\$279

## SyQuest

Unformatted Capacity	Access Time	Price
Includes one free cartridge (2 year Warranty)		
44 mb External	19 ms	\$398
88 mb External	19 ms	\$489
88C mb External	19 ms	\$589

## Opticals

Includes one free disc (1 year Warranty)		
128 mb Panasonic Optical	39 ms	\$998
128 mb Epson Optical	29 ms	\$1078
256 mb Most Optical	31 ms	\$1698

## DAT Drives

Unformatted Capacity	With DIO Backup	With Retrospect
Includes one free DAT Tape & your choice of DIO Backup or Retrospect		
WangTek 2.1 Gig	\$998	\$1098
WangDat 5.0 Gig	\$1348	\$1448

## Accessories

Powerbook cable	\$30
3 Ft. 50/50 cable	\$15
6 Ft. 50/50 cable	\$25
Half High Cab w/ AC outlets	\$90
Full High Cab w/AC outlets	\$125
Half High Cab w/o AC outlets	\$80
MicroCab	\$90

## Media

Model	QTY 1	SPK	10PK	Model	QTY 1	SPK	10PK
SyQ44 cart	\$72	\$67	\$65	SyQ 88 cart	\$119	\$104	\$99
128mb OPT	\$54	\$44	\$39	256mb OPT	\$88	\$84	\$79
60mm DAT	\$20	\$16	\$14	90mm DAT	\$25	\$19	\$17

## Memory

Model	60 NS	70 NS	80 NS	Model	60 NS	70 NS	80 NS
1x8	Call	\$33	Call	2x8	Call	\$63	Call
4x8	Call	\$133	Call	8x8	Call	Call	\$279
16x8 FX	Call	Call	\$549	16x8 Q950	Call	Call	\$515
PB140/170 2mb module	\$95			PB160/180 4mb module	\$205		
PB140/170 4mb module	\$169			PB160/180 6mb module	\$279		
PB140/170 6mb module	\$225			PB160/180 8mb module	\$369		
256 Q950 VRAM	\$28			PB160/180 10mb module	\$429		
256 Q700,900 VRAM	\$28			512k VRAM IIVX,LC	\$49		

730 Main • Suite 102-556 • Billings, MT 59105

Visa, Mastercard, Amex, COD, Telecheck Approved Checks, Gov., Corp., Univ., P.O.s welcome. All new drives, preformatted with latest stable system software. Factory warranty. Bracket, cables and software included. 30 Day Money back Guarantee covers drive products only. Return Authorization number required for returns. Prices, terms and availability subject to change without notice.

Hours: 7:30 - 5:00 Mountain Time • Technical Service and Order Tracking 7:30-5:00 Mountain Time 406-256-5806



# SyQuest: The Standard in Transportable Storage

**External  
SyQuest 555**

**\$389**

Includes One  
44MB Cartridge

**External  
SyQuest 5110**

**\$489**

Includes One  
88MB Cartridge

**NEW! External  
SyQuest 5110c**

**\$599**

Includes One  
88MB Cartridge



**DIVA**  
Ask about  
formatted  
cartridges with  
DiVA VideoShop

**30-Day  
Money-Back  
Guarantee**

**Unlimited  
Toll-Free  
Technical  
Support**

**Disk-For-Disk  
Replacement  
Warranty**

**24-Hour  
BBS with  
Our Latest  
Software**

**Bright,  
Knowledgeable  
Sales  
Associates**

**Y**ou know the SyQuest 44 and 88. Together they're the transportable storage standard. True interchangeability has been the only problem in an otherwise idyllic transportable storage world. SyQuest's 5110c solves the problem. With both read and write compatibility with 44MB and 88MB cartridges, you no longer have to wonder which SyQuest unit to buy.

## Access Files On Any SyQuest Drive

Save files on 44MB or 88MB cartridges, then take them to any compatible SyQuest drive anywhere knowing you'll be able to access them quickly and effortlessly. With the new 5110c drive, that's doubly true.

SyQuest's 5110c allows you to read and write to both 44 and 88MB cartridges (\*won't format 44MB cartridges)! Never worry about whether you'll be completely compatible.

## The APS SyQuest Difference

The APS SyQuest's exacting design specifications include special power supply

accommodations that help prevent dangerous drops to the 5-volt interface which can blow components and damage both drive and data. Our SyQuest enclosures use special fans that are thermostatically controlled to keep the interior operating temperature at optimal levels. We use premium SCSI cables and connectors to ensure the best possible data transmission. There is a difference!

## APS SyQuest Drives—The Best Deal In Town

SyQuest removable cartridge drives include one cartridge an external terminator and Dantz Development's DiskFit Direct. APS's SyQuest 44 is just \$389, the 88 is just \$489.

SyQuest 44MB cartridges are \$65, 10 packs, just \$630. 88MB cartridges are just \$100, \$950 in 10 packs. Preformatted cartridges are just \$5 more per cartridge, and a real time saver!



\* 30-day money-back guarantee • All drive products carry a 30-day money-back guarantee. Your risk in the transaction is the cost of shipping.  
• Disk-for-disk replacement warranty • SyQuest, most Quantum, Maxtor and DAT drives are warranted for two years. Maxtor 1.2, 1.7 GB and Fujitsu drives are warranted for five years. WREN, Quantum 25" drives, TEAC drives, all CD-ROMs, MOs and SyQuest carts are warranted for one year. Toshiba 830 is warranted for three years.  
• Prices and specifications subject to change without notice. Refused orders subject to restocking fee.

• All our hard drives include brackets, cables, cords and LEDs required for operation with the specified Macintosh. All hard drives from APS Technologies come preformatted with Apple's System 7.0.1 software, at least 9.2MB of compacted publicly-distributable software, and APS Technologies' ALLIANCE POWER TOOLS SCSI formatter/hard disk partitioner.  
• Toll-free technical support as often or for as long as you need. Regular hours are 8 am to 8 pm Monday thru Friday, 10 am to 4 pm Saturday, Central Time.

**M-F 7AM-9PM CST. SAT 10AM-4PM CST.**

Visa/Master Card, Discover, American Express: No Surcharge.

APS Technologies, 2900 S. 29th Hwy., Independence, MO 64057  
International: 1-816 478-8300. FAX: 1-816 478-4596 (24 Hours).  
Toll Free UK: 0800-897-545. Australia: 0014-800-125-875.

**APS Technologies**  
**Great Prices, Priceless Support**

**800 645-5401**



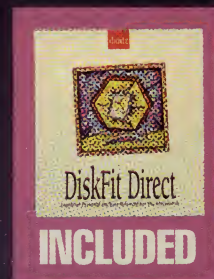


Great Prices. Priceless Support!

# Outrageous Speed

## APS Maxtor I240, \$1699

Need a high capacity drive with benchmark-shattering performance? Then the new APS Maxtor 1240 is the drive for you. With transfer rates topping 4MB per second, incredible 8.2ms seek times, a 500,000 hr MTBF, three-year warranty and APS's legendary support, this *the* drive of choice with your Quadra or fx for that high-capacity, high performance storage need.



External  
Maxtor I240  
**\$1799**

### Quantum

MB	INTL	EXTL
240	\$399	\$479
525	959	1029
1225 <sup>5</sup>	1499	1569

<sup>5</sup>5-year warranty

### Quantum

ELS Low Profile Drives

MB	INTL	EXTL
42	\$159	\$219
85	199	269
127	279	349
170	299	359

### Maxtor

MB	INTL	EXTL
120 <sup>2</sup>	\$229	\$309
213 <sup>2</sup>	349	409
340 <sup>2</sup>	599	669
540 <sup>3</sup>	1099	1199
1240 <sup>3</sup>	1699	1799
1.2G <sup>5</sup>	1499	1599
1.7G <sup>5</sup>	1799	1899

<sup>2</sup>2-year warranty <sup>3</sup>3-year warranty <sup>5</sup>5-year warranty

### APS SCSI Boy \$29



- The Ultimate PowerBook Necessity
- Rugged Palm-Sized 25-30 PowerBook SCSI Adapter
- Carry Only One Cable
- Never Get Caught with the Wrong Cable Again!
- <sup>1</sup>Dealer Inquiries Welcome

### Micropolis

MB	INTL	EXTL
560	\$1099	\$1199
1.1G	1649	1729
2.0G	2699	2799

Includes 5-year warranty

### Quantum

PowerBook Go•Drives

MB	INTL	EXTL
80GRS	\$349	\$499 <sup>†</sup>
120	399	529 <sup>†</sup>
160GRS	549	679 <sup>†</sup>

<sup>†</sup>Battery-powered Companion Case for the PowerBook

### Fujitsu

MB	INTL	EXTL
520	\$949	\$1049
1.2G 5.25"	1399	1499
1.2G 3.5"	1799	1899
2.0G	2299	2399

Includes 5-year warranty



APS PowerBook Companion Cases

The Perfect Home for Your Original PowerBook Drive

AC only	\$79
AC/DC (Battery-Powered)	169



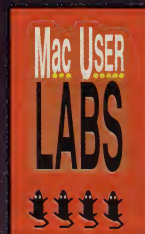
# APS Technologies



# The Fastest DAT Ever!

## APS Turbo DAT, \$1599

The APS Compression DAT rated the MacWorld Editor's Choice for high capacity backup. Now, get even better performance with the APS Turbo DAT. Based on Archive's Turbo Python DAT Mechanism, the fastest DAT unit available, the APS Turbo DAT is more than 20% faster than all other DAT units. With a two-year warranty and 80,000 hr MTBF you'll probably never need APS's legendary support.



Internal for  
Quabras  
**\$1499**

30-Day  
Money-Back  
Guarantee

Unlimited  
Toll-Free  
Technical  
Support

Disk-For-Disk  
Replacement  
Warranty

24-Hour  
BBS with  
Our Latest  
Software

Bright,  
Knowledgeable  
Sales  
Associates

### Toshiba

MB	INTL	EXTL
213	\$669	\$799†

†Battery-powered Companion Case for the PowerBook

1.2G	\$1399	\$1499
------	--------	--------



CD-ROM		
3401-E1	\$699	\$749*

Fastest CD-ROM Drive Available

Double Speed, Multi-Session Photo CD Compatible

\*Includes Four-Disc APS CD Bundle

### APS Modems \$69 for PowerBooks

2400 baud (9600 send fax/4800 receive fax)



9600 baud v.32 \$279

14,400 baud v.32 bis \$349

All APS Modems for the PowerBook include a 30-day MBG, comprehensive installation guide, and APS's Communications & Fax software.

### SyQuest



Model	INTL	EXTL
SQ555	\$349	\$389
SQ5110	469	489
SQ5110c	569	599

The 5110c reads & writes 44 & 88 carts!  
SyQuest Cartridges 44/88.....\$65/100  
Preformatted Cartridges 44/88.....\$70/105

### TEAC



155 MB Tape Back Up \$499

600 MB Tape Back Up \$799

All APS Tape Drives Include Retrospect by Dantz

### DAT



MB	INTL*	EXTL
APS TurboDAT	\$1499	\$1599
APSDAT	1099	1199

\*Internal models for Quadra 900 & 950

All APS DAT Drives Include Retrospect by Dantz

### 128MB MO

Model	INTL	EXTL
Epson	\$1099	\$1199

128MB Magneto Optical Drive

\*30-day money-back guarantee. All drive products carry a 30-day money-back guarantee. Your risk in the transaction is the cost of shipping.

\*Disk-for-disk replacement warranty. SyQuest, most Quantum, Maxtor and DAT drives are warranted for two years. Maxtor 12, 17 GB and Fujitsu drives are warranted for five years. WREN, Quantum 25" drives, TEAC drives, all CD-ROMs, MOs and SyQuest carts are warranted for one year. Toshiba 830 is warranted for three years.

\*Prices and specifications subject to change without notice. Refused orders subject to restocking fee.

\*All our hard drives include brackets, cables, cords and LEDs required for operation with the specified Macintosh. All hard drives from APS Technologies come preformatted with Apple's System 7.0.1 software, at least 9.2MB of compacted publicly-distributable software, and APS Technologies' ALLIANCE POWER TOOLS SCSI formatter/hard disk partitioner.

\*Toll-free technical support as often or for as long as you need. Regular hours are 8 am to 8 pm Monday thru Friday, 10 am to 4 pm Saturday, Central Time.

M-F 7AM-9PM CST. SAT 10AM-4PM CST.

Visa/Master Card, Discover, American Express: No Surcharge.

APS Technologies, 2900 S. 29th Hwy., Independence, MO 64057  
International: 1-816 478-8300. FAX: 1-816 478-4596 (24 Hours).  
Toll Free UK: 0800-897-545. Australia: 0014-800-125-875.

# 1-800-645-5401





# Quantum

NEW  
LOWER PRICES



Unformatted Capacity	Model	Access Time	Actual MAC Capacity	Internal	External
<b>GO* DRIVE (2.5" HARD DRIVES DESIGNED FOR NOTEBOOKS)</b>					
80mb	GO80	17ms	80mb	\$299	\$399
120mb	GO120	17ms	120mb	\$389	\$489
<b>ELS SERIES (3.5" LOW PROFILE AND LOW POWER)</b>					
42mb	ELS42	19ms	40mb	\$175	\$235
85mb	ELS85	17ms	82mb	\$199	\$259
127mb	ELS127	17ms	124mb	\$269	\$329
170mb	ELS170	17ms	160mb	\$299	\$359
<b>LPS SERIES (3.5" LOW PROFILE)</b>					
105mb	LPS105	11ms	100mb	\$255	\$315
240mb	LPS240	10ms	234mb	\$369	\$429
525mb	LPS525	10ms	500mb	\$909	\$969
<b>PRODRIVE SERIES (3.5" HALF HEIGHT)</b>					
425mb	PRO425	9ms	406mb	\$879	\$939
700mb	PRO700	10ms	670mb	\$1195	\$1255
1.0GIG	PRO1050	10ms	1001mb	\$1339	\$1399
1.2GIG	PRO1225	10ms	1165mb	\$1495	\$1555

GO-Drives carry a ONE Year Warranty. ELS drives, LPS drives, PRO drives carry a TWO Year Warranty.

# Maxtor

Unformatted Capacity	Model	Access Time	Actual MAC Capacity	Internal	External
<b>XT SERIES (3.5" LOW PROFILE)</b>					
120mb	7120S	15ms	121mb	\$225	\$285
207mb	7213S	15ms	202mb	\$339	\$399
<b>LXT &amp; MXT SERIES (3.5" HALF HEIGHT)</b>					
330mb	LXT-340	15ms	324mb	\$589	\$649
535mb*	MXT-535	8.5ms	521mb	\$975	\$1035
1240mb*	MXT-1240	8.5ms	1150mb	\$1599	\$1659
<b>PANTHER SERIES (5.25" FULL HEIGHT)</b>					
1.2GIG	PO-12S	13ms	997mb	\$1295	\$1395
1.7GIG	P1-17S	13ms	1433mb	\$1595	\$1695

Maxtor 3.5" drives carry a ONE Year Warranty. Maxtor 5.25" drives carry a TWO Year Warranty.

# CONNER

Unformatted Capacity	Model	Description	Access Time	Actual MAC Capacity	Internal	External
85mb	CP30080E	3.5" Low Profile	17ms	82mb	\$199	\$259
170mb	CP30170E	3.5" Low Profile	17ms	160mb	\$285	\$345
212mb	CP30200	3.5" Low Profile	12ms	206mb	\$369	\$429
540mb	CP30540	3.5" Half Height	10ms	515mb	\$899	\$959

Conner drives carry a ONE Year Warranty.

FIVE YEAR  
WARRANTY

# FUJITSU

Unformatted Capacity	Model	Description	Access Time	Actual MAC Capacity	Internal	External
425mb	M2623FA	3.5" Half Height	9ms	405mb	\$895	\$955
520mb	M2624FA	3.5" Half Height	9ms	496mb	\$945	\$1005
1.1GIG	M2694	3.5" Half Height	8.5ms	995mb	\$1695	\$1755
1.2GIG	M2266	5.25" Full Height	14.5ms	1029mb	\$1375	\$1475
2.0GIG	M2652	5.25" Full Height	14.5ms	1665mb	\$2295	\$2395
2.4GIG	M2654	5.25" Full Height	11.5ms	2000mb	\$2499	\$2599



## CLUBMAC 88c REMOVABLES\*

ClubMac 88c External (SQ5110C)	\$579
ClubMac 88c Internal	\$559
ClubMac 88c Dual	\$1045

\*ClubMac 88c will read and write 44mb cartridges, but will not format 44mb cartridges.

## FEATURING



**SyQuest®**  
REMOVABLE  
TECHNOLOGY



## CLUBMAC 44mb REMOVABLES

ClubMac 44mb External (SQ555)	\$385
ClubMac 44mb Internal	\$345
ClubMac 44mb Dual	\$695

## CLUBMAC 88mb REMOVABLES

ClubMac 88mb External (SQ5110)	\$489
ClubMac 88mb Internal	\$469
ClubMac 88mb Dual	\$875

## SYQUEST CARTRIDGES

44mb Cartridge	\$63
88mb Cartridge	\$97

SyQuest Drives include TWO Year Warranty, one cartridge and necessary cables, SCSI Director™ Formatting Utility. SyQuest Cartridges carry a ONE Year Warranty.

# Seagate

## FEATURING...THE ELITE DRIVES



Unformatted Capacity	Model	Description	Access Time	Actual MAC Capacity	Internal	External
<b>3.5" DISK DRIVES</b>						
248mb	ST3283N	Low Profile	12ms	235mb	\$479	\$539
1.2GIG	ST11200N	Half Height	10.5ms	1000mb	\$1369	\$1429
<b>WREN AND ELITE SERIES (5.25" FULL HEIGHT)</b>						
645mb	ST4767N	Wren Runner II	11.9ms	634mb	\$1519	\$1619
1.2GIG	ST41200N	Wren-7	15ms	989mb	\$1249	\$1349
1.6GIG	ST41651N	Wren-8	15ms	1350mb	\$1679	\$1779
2.1GIG	ST42100N	Wren-9	12.9ms	1900mb	\$1869	\$1969
1.6GIG	ST41600N	Elite-1	11.5ms	1307mb	\$1839	\$1939
2.4GIG	ST42400N	Elite-2	11ms	2050mb	\$2539	\$2639
3.4GIG	ST43400N	Elite-3	11ms	2750mb	\$3419	\$3519

Seagate drives carry a ONE Year Warranty.

FIVE  
YEAR  
WARRANTY

# HEWLETT PACKARD

Unformatted Capacity	Model	Access Time	Actual Mac Capacity	Internal	External
<b>3.5" HALF HEIGHT DRIVES</b>					
234mb	C2233	12.6ms	223mb	\$799	\$859
422mb	C2235	12.6ms	402mb	\$1049	\$1109
1.2GIG	C2247	10.5ms	1000mb	\$1599	\$1659
<b>5.25" FULL HEIGHT DRIVES</b>					
677mb	97556	13.5ms	633mb	\$1465	\$1565
1.2GIG	97558	13.5ms	1020mb	\$1665	\$1765
1.6GIG	97560	13.5ms	1292mb	\$1995	\$2095
2.4GIG	CP3010	11.5ms	2000mb	\$2989	\$3089

## ClubMac TAPE BACKUP Systems

Capacity	Model	Description	Media	Internal	External
155mb	Teac MT2ST/N50	Analog	CT600N	\$429	\$449
600mb	Teac MT2ST/F50	Analog	CT600F	\$629	\$649
250mb	Archive Viper 250	Analog	DL6250	\$479	\$499
500mb	Archive Viper 500	Analog	DL6250	\$709	\$729
2.0GIG	Archive Python	DAT, DDS	4mm	\$1129	\$1149
3-5GIG	Archive Turbo DAT	DAT, DDS-DC	4mm	\$1339	\$1359
2.0GIG	HP 35470A	DAT, DDS	4mm	\$1329	\$1349
3-5GIG	HP 35480A	DAT, DDS-DC	4mm	\$1529	\$1549
2.2GIG	Exabyte EXB-8200	Digital/Helical	8mm		\$1859
5.0GIG	Exabyte EXB-8500	Digital/Helical	8mm		\$2849

Includes RetroSpect v.2.0c Backup Software, One Tape and ONE Year Warranty

## ClubMac OPTICAL Drives

Model		Capacity	Description	Seek	External
CMO-OD3000	Teac	128mb	3.5" Half Height	45ms	\$989
CMO-LF3004	Panasonic	128mb	3.5" Half Height	45ms	\$1129
CMO-3100E	Ricoh	128mb	3.5" Half Height	45ms	\$1075
CMO-5031E	Ricoh	594/652mb	5.25" Full Height	28ms	\$2345
CMO-JY-750	Sharp	594/652mb	5.25" Half Height	40ms	\$2295
CMO-Tahiti II	MaxOptix	650mb/1.0GIG	5.25" Full Height	35ms	\$3195
128mb Cartridge		3.5" Single Sided			\$39
594/652mb Cartridge		5.25"-512/1024 bytes/sec			\$99

All ClubMac Opticals include ONE cartridge and ONE Year Warranty.

1-800-258-2622

1-800-CLUBMAC

1-800-258-2622



# NEC

BRIGHTEN YOUR VISION with NEC's award winning peripherals for Macintosh computers

## NEC MULTISPIN CDR-74

\$619

World's first multi-speed CD-ROM reader, the Multimedia (MPC) and QuickTime compliant NEC CDR-74.

KODAK'S MULTISESSION PHOTO CD CAPABLE



- 280ms access time
- 300KB/sec data transfer • 256K cache
- SCSI-1/SCSI-2 Embedded Interface
- Kodak's Photo CD Technology
- MultiSpin technology: spins CD twice as fast when accessing data

## NEC MULTIMEDIA GALLERY

\$799

- QuickTime compatible NEC CDR-74 CD-ROM reader with MultiSpin technology
- Amplified stereo speakers & headphones
- 6 software titles
  - Just Grandma and Me • Color It!
  - Great Wonders of the World, Volume 1
  - Sherlock Holmes, Consulting Detective
  - The New Grolier Multimedia Encyclopedia
  - The Software Toolworks U.S. Atlas



## NEC CD EXPRESS

\$349

CD Express is the easiest, most complete, and most affordable way for your family to experience the world of advanced interactive CD-ROM technology.

- CDR-25 Multimedia PC compliant CD-ROM reader • Stereo speakers
- 10 software titles
  - The Software Toolworks World Atlas
  - Publish It!
  - Total Baseball
  - The Family Doctor • Best of the Bureau
  - Great Cities of the World, Volume 2
  - Discs Books Aesop's Fables
  - Lucasfilm Game Favorites
  - Interactive Storytime
  - The Manhole CD-ROM



BUY THE CD EXPRESS & GET 2 MORE FREE CDs FROM NEC  
(1) SOFTWARE TOOLWORKS ENCYCLOPEDIA CD-ROM  
(2) PHOTO SAMPLE CD-ROM & KODAK PHOTO-CD ACCESS SOFTWARE  
HURRY OFFER EXPIRES MARCH 31, 1993!!

## NEC MULTISPIN 38

\$479

- The MultiSpin 38 offers true portability in a sleek, lightweight, one-piece design
- 400ms access time • SCSI-2
- Fully compatible with
  - Kodak's Multisession Photo CD
  - MultiSpin technology: spins CD twice as fast when accessing data
  - 300KB/sec data transfer

BATTERY PACK \$69  
BATTERY PACK AND CHARGER KIT \$89



## MULTISYNC FG COLOR MONITORS

### MULTISYNC 3FGx \$609

- 15" multiple frequency color monitor
- MPR-II compliant
- High-contrast polished screen
- Resolution up to 1024 X 768



GET A \$100 REBATE WHEN YOU BUY THE NEC MacFG 24XP COLOR DISPLAY INTERFACE CARD AND A 15" OR 17" MULTISYNC FG SERIES COLOR MONITOR.

If you already own a NEC 15" or 17" MultiSync FG Series Color Monitor, you will get the \$100 rebate if you add the NEC MacFG 24XP Color Display Interface Card to your MAC system.



### MULTISYNC 4FG \$729

- 15" multiple frequency color monitor
- AccuColor Control System
- MPR-II compliant
- Advanced digital controls
- Resolution up to 1024 X 768



### MULTISYNC 5FG

(17" with AccuColor)

\$1299

### MULTISYNC 6FG

(21" with AccuColor)

\$2349

## MacFG COLOR DISPLAY INTERFACE CARDS

The MacFG Color Display Interface card, engineered in conjunction with Radius, gives you flexible display capabilities seamlessly integrated with each of the MultiSync FG monitors.

- NuBus QuickDraw accelerated display interface cards
- Supports Mac II family, Quadras, and New MACs
- Offers multiple display modes with real time switch-on-the-fly between display modes

### NEC MacFG 24XP (designed for 15" and 17" MultiSync FG Monitors)

\$495

- Provides 24-bit color capability for color-intensive business graphics, QuickTime, Photo CD and desktop publishing applications.
- Multiple resolution support • Switch-on-the-fly capability • Built-in QuickDraw acceleration for faster graphics processing

### NEC MacFG 24X

\$1199

- Supports 24-bit color depth, 16.7 million colors • Built-in QuickDraw acceleration • Supports up to 1152 x 870 resolution

### NEC MacFG 8X

\$639

- Supports 8-bit color, upgradeable to 16-bit or 24-bit • Built-in QuickDraw acceleration • Supports up to 1152 x 870 resolution

## SILENTWRITER LASER PRINTERS



MacUser  
★★★★  
September '92

LIMITED TIME OFFER  
3 YEAR ON-SITE WARRANTY  
& \$250 REBATE FROM NEC

### SILENTWRITER MODEL 95F

\$1369

- 6 ppm • 35 fonts • 2 MB RAM • Adobe PostScript Level 2
- Parallel, Serial, AppleTalk Interface • HP LJ II Emulation
- Auto Interface Monitor Switching
- 250-sheet Paper Capacity • Built-in Envelope Feeder

LESS MFG REBATE -\$250  
\$1119\*

### SILENTWRITER MODEL 97

\$1749

- 10 ppm • 35 fonts • 2 MB RAM • Adobe PostScript Level 2
- Parallel, Serial, AppleTalk Interface • HP LJ II Emulation
- Auto Interface Monitor Switching
- 250-sheet Paper Capacity • Built-in Envelope Feeder

LESS MFG REBATE -\$250  
\$1499\*

## Built-In POSTSCRIPT FAX

### SILENTWRITER MODEL 95FX

\$1719

- Model 95fx combines the Model 95 printer with a built-in plain paper fax
- Fax from any MAC or DOS/Windows PC using the software included with the printer
- The Model 95fx can send & receive faxes to/from any standard fax machine or other Model 95fx

LESS MFG REBATE -\$250  
\$1469\*

### SILENTWRITER MODEL 97FX

\$2059

LESS MFG REBATE -\$250  
\$1809\*

\* Less Manufacturer's rebate, offers expires April 30, 1993



## HP SCANJET IIc COLOR SCANNER

\$1295

- 400 x 400 dpi (800 dpi via interpolation)
- Single-pass scanning delivers superior image quality in 24-bit color & 8-bit grayscale
- HP AccuPage technology
- Three-Dimensional Scanning

## AUTOMATIC DOCUMENT FEEDER

ScanTastic (Adobe Photoshop Plug-In) \$69



## HP SCANJET IIp GRAYSCALE SCANNER

\$695

- 300 x 300 dpi (600 dpi via interpolation)
- 8-bit grayscale provides high-quality reproductions of photographs and illustrations
- HP AccuPage technology

\$50 REBATE ON HP SCANJET IIp AUTOMATIC DOCUMENT FEEDER



## AUTOMATIC DOCUMENT FEEDER

\$279

HEWLETT PACKARD  
Authorized Scanner Dealer

# EPSON



## ES-600C 1200 dpi \$859

- 300 X 300 dpi optical resolution, 1200 dpi via interpolation
- Epson's TruePass Scanning System (single or multi-pass)
- 8-bit grayscale and 24-bit color scanning

## ES-800C 1600 dpi \$1119

- 400 X 400 dpi optical resolution, 1600 via interpolation
- Epson's TruePass Scanning System (single or multi-pass)
- 8-bit grayscale and 24-bit color scanning

## INTERFACE KIT

\$239

Interface Kit includes Full Version of Adobe Photoshop & ScanTastic

ScanTastic (Adobe Photoshop Plug-In) \$69  
Automatic Document Feeder \$465  
Transparency Unit \$765

# SUPERMAC

FREE ADOBE PREMIERE

## DISPLAYS

- SuperMatch 21 Two-Page (9771) \$2449
- SuperMatch 20 Dual-Mode Trin. (9751) \$2449
- SuperMatch 20-T Multimode Trin. (9752) \$2449
- SuperMatch 20 Color (9782) \$1479
- SuperMatch 17 Multimode (9730) \$1149
- SuperMatch 17-T Trinitron (9735) \$1049
- Platinum 21 Two-Page Display (9761) \$989



## ACCELERATORS / GRAPHIC CARDS

- ThunderStorm \$815
- Spectrum/24 Series IV \$815
- Spectrum/24 PDQ Plus \$1515
- Spectrum/8-24 PDQ NuBus or IIsi \$815
- QUICKTIME MOVIE MAKING
- VideoSpigot NuBus\*\* IIsi\* \$369 / 329
- Spigot & Sound NuBus\* \$479
- VideoSpigot Pro NuBus\*\* IIsi\*\* \$1069 / 1229
- Spigot & Sound Pro NuBus\*\* \$1069

\* FREE Adobe Premiere 2.0 LE  
\*\* FREE Adobe Premiere 2.0 Full Version

# radius

## RADIUS VIDEO CARDS

- VideoVision (Basic System) \$1625
- VideoVision (Presentation) \$1929
- (Presentation package includes Adobe Premiere 2.0)
- PrecisionColor 8XJ \$489
- PrecisionColor 24X \$1629
- PrecisionColor 24XP / 24XK \$489/819
- Color Pivot / Mono Pivot \$499/249
- Two Page Display / Full Page \$375/189
- PowerView \$489

## ACCELERATORS

- Radius Rocket 25i / 33 \$1199/1949
- RocketShare \$399
- SCSI-2 Booster \$249
- RADIUS DISPLAYS
- Color Display/21 \$2319
- PrecisionColor Pivot \$935
- PrecisionColor 20 or 20/S \$2319
- PrecisionColor/19 \$2029
- Full Page Display \$569
- Monochrome Pivot \$699
- Two Page Display/19 \$879
- Two Page Display/21 / 21E \$1149 / 1299



VIDEOVISION \$1929 PRESENTATION SYSTEM

# DAYSTAR DIGITAL

33MHz TURBO 040  
100% compatible with any software that runs on a Quadra and any hardware that runs on a Mac Ili.



33 MHz TURBO 040 \$1345  
FASTCACHE TURBO 33 CHARGER \$335 \$759

# POWERCACHE

- Classic, SE, LC, SE30, II, IliX, IliX, IIsi, IliC, Performa w/o FPU w/ FPU
- 33 MHz PowerCache\* \$375 \$465
- 40 MHz PowerCache\* \$545 \$635
- 50 MHz PowerCache\* \$715 \$845
- Equalizer LC \$169 \$239
- PowerCache Adapter \$41

\*PowerCache Adapter not included

# Universal POWERCACHE

# 100% COMPATIBLE

## CACHE CARDS

- FastCache IIsi \$279
- FastCache IIsi with 68882 \$349
- FastCache IliC \$199
- FastCache Quadra-Q700/900 \$249
- FastCache Quadra-Q700/900/950 \$375
- EXPANSION BOARDS
- DualPort IIsi \$165
- PowerMath LC \$115

## MEMORY...

### STANDARD MAC

- 1mb X 8 SIMMS \$32
- 2mb X 8 SIMMS \$67
- 4mb X 8 SIMMS \$125
- 4mb with PAL SIMMS \$135
- 8mb SIMMS \$279
- 8mb SIMMS for Q700 \$299
- 16mb SIMMS \$540
- 16mb Low Profile SIMMS \$585

### MAC IIFX

- 1mb X 8 SIMMS \$34
- 4mb X 8 SIMMS \$129
- 8mb SIMMS \$285
- 16mb SIMMS \$565
- CENTRIS 610/650/LCIII
- 4mb / 8mb / 16mb \$149 / 299 / 615
- QUADRA 800
- 4mb / 8mb / 16mb \$179 / 339 / 685
- VIDEO RAM
- 256K VRAM for Quadras \$25
- 512K VRAM for LC, LCII, IliX \$49

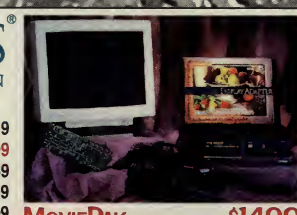
### POWERBOOK 140/145/170

- 6mb Memory Module \$205
- POWERBOOK 160/180
- 4mb Memory Module \$169
- 6mb Memory Module \$245
- 8mb Memory Module \$325
- 10MB Memory Module \$419
- DUO 210/230
- 4mb Memory Module \$229
- 8mb Memory Module \$345
- NEC SILENTWRITER
- 2mb Memory Upgrade \$99

# RASTEROPS CORPORATION

## GRAPHIC DISPLAYS

- 21" Color (2168) \$2519
- 20 Multimode Color (2085H) \$1299
- 20T MultiScan Trinitron (2075M) \$2089
- 21" Mono/Grayscale (2110) \$999
- 15" Mono/Grayscale Portrait (1510) \$499



MOVIEPAK \$1499

## COLOR DISPLAY ADAPTERS

- RasterOps 24XLi \$1889
- PaintBoard 24 / Li \$1449 / 815
- RasterOps 24Sx \$619
- MULTIMEDIA
- RasterOps 24XLTV \$2639
- MediaTime / VideoTime \$1499 / 1135
- RasterOps 24STV \$729
- PhotoPro NuBus \$589
- Video Expander NTSC \$529

WARRANTIES: All items manufactured by ClubMac are returned to ClubMac for warranty repair. All other items carry manufacturer's warranty. MONEY BACK GUARANTEE: All products manufactured by ClubMac carry a 30 day money back guarantee. ClubMac extends all other manufacturers' return policies to its customers. Non-ClubMac products carry 30 day money back guarantee when specified. RETURNS: Call for RMA number! Any product that is returned WITHOUT an RMA number will be refused. ALL PRODUCT INFORMATION AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.

# ClubMac

1-800-258-2622

Sales, Info, Int'l (714)768-8130

Tech Support (714)768-1490

3 Musick • Irvine, CA 92718

24-Hour Fax (714)768-9354

1-800-258-2622

1-800-CLUBMAC

1-800-258-2622



# Our **New** Prices Have the Competition Seeing Red!



## STORAGE!



44MB REMOVABLE

**\$469**

Procom 44 MB Removable with cartridge  
See below for complete line of storage products

## MAGNAVOX

A Philips Company



**\$399**

Magnovox 14" Color for all Macs  
14" display with 24-bit color card \$829

## UMAX®

### 800 <sup>24-BIT</sup> DPI



**\$1345**

Call for Kai's  
Power Tools  
Special Bundle!

Umax UC840 Color Scanner with Photoshop  
(shown with optional transparency unit)

## Macintosh



**\$1099**

Mac LC III 4/40 (price is for CPU only)  
LC III with 14" color display & keyboard \$1,645

### Drives & Storage



**\$739**

Procom CD-Station Super fast 200ms  
access time CD-ROM includes 7 popular  
CD titles, stereo speakers & headphones.

#### Removable Drives

88 Read/Write 44 Syquest Drive	599
21MB Floptical	399
3.5" 128MB Optical, Sony Mech.	1495
5.25" 650MB Optical	2795
2GB DAT Backup	1499

Procom Technology manufactures high  
performance, high quality computer storage  
devices. All Procom products are fully  
formatted, tested and backed by 1-5yr  
warranties along with MacNews' own 30 day  
MBG. Call for more info.

### Displays & Cards



**\$2,195**

Philips/Magavox 14" display	399
Philips 15" color display	599
Philips 17" Trinitron display	1095
Philips 21" color display	2695

8-bit & 24-bit Accelerated Color Cards  
available for all displays. Call for prices.

Apple 12"/14"	399/569
Sony 1304/1604	Call/1095
Seiko 1445 14" Trinitron	Call
Seiko 20" Trinitron	Call
RasterOps 20" Color Trinitron	Call
E-Machines T16 II/T19 II	1295/2395
E-Machines Color Cards	Call
E-Machines PowerLink Presenter	499

### LAPIS COLOR

## Cards

For Mac Plus, Classic, SE,  
SE/30, LC, LC II, IIs, II-  
family & Quadras

**Call**

8-bit card for SE/30, IIs & Quads  
8/16-bit for SE/30, IIs & Quads  
24-bit for SE/30, IIs & Quads  
LC-TV lets LC's work w/any TV  
Lapis 15" portrait grayscale display  
Call for New Pricing and  
Let us help you pick the right card!

Great for SE/30's

### radius

NEW Precision  
Color Pivot

15" Portrait/  
Landscape.  
Compatible  
with Quadra  
& Centris on-  
board video

**\$929**

New Radius PrecisionColor 20S 2345  
Radius MonoPivot 699  
Radius 24Xp/24Xk/24X 495/795/Call  
VideoVision with Premier 1899  
Radius Rockets/RocketShare Call

### SIGMA DESIGNS

TRINITRON

17" Trinitron  
Multi-  
resolution,  
Trinitron  
display

**\$1245**

PowerPortrait 15" display (for SCSI) Call  
PageView gray scale 15" display 499  
21" SilverView Pro (mono/GS) 1099

## Snooper

FREE Virex & Norton!

**\$109**

Snooper Special - While Supplies Last!  
2.0 Software with Virex & Norton 109  
2.0 NuBus Kit with Virex & Norton 149

### Scanners

Umax UC630, 600dpi with Photoshop	1095
Tamarack Artiscan 600C w/ Photoshop	999
Tamarack Artiscan 800C w/ Photoshop	1295
Tamarack Artiscan 1200C	1995
24-bit True optical 1200 dpi, with Photoshop	

### MICROTEK

NEW Microtek ScanMaker IIx	859
1200 dpi, 24-bit color with Photoshop LE	
NEW Microtek ScanMaker IIx	1099
1200 dpi, 24-bit color with full Photoshop	
Transparency Option for II & IIx	Call
Microtek ScanMaker 1850S	999
1850dpi, 24-bit color slide scanner, Photoshop	

ASK ABOUT \$75 MICROTEK REBATES

### Kai's POWER TOOLS™ for Adobe Photoshop®

HSC Kai's Power Tools \$99  
"Amazingly powerful, yet easy to use plug-in filters  
for Photoshop. If you use Photoshop you'll love this  
product!" Publish Magazine 5-Star winner.  
Call for SPECIAL PRICE with SCANNER!

**\$249**

OmniPage Professional OCR 629  
Image Assistant 329

**\$99**

Axion Switch  
Now you can connect 3  
serial devices to your Mac

## Macs

Mac LC III, 4/80	1245
Mac IIvx, 4/0	1395
Centris 610/650	NEW
Quadra 800 8/230	3995
Quadra 950 8/0	4795
PowerBooks 160, 180 & Duos	Call

### Quadra Accelerator

128k, copy back cache card speeds up the Quadra  
700, 900 & 950 fast made by up to 25%.

QuadCache 25 for 700 & 900 269  
QuadCache 33 for 950 349

## Network Dayna

Dayna EtherPrint  
Ethernet connection  
for printers

**\$329**

Ethernet Interfaces in Thin or 10baseT

DaynaPort, Mac II family, IIs	149
DaynaPort, Mac SE/30, LC, LC II	149
MiniHub/Hub12	239679
PathFinder Router	629
SCSI Link	269

Let us help you pick the right interface!

### Modems

Hayes Acura 24 modem	74
Hayes Acura 9696 fax modem	249
Hayes Acura 144 fax modem	299

Supra Corporation

SupraFAX Modem Plus	149
SupraFAX Modem V.32	299
SupraFAX Modem V.32 144	339

## SIMMs

All SIMMs \$3  
Fed Est

1 MB SIMM, 70ns	35
4 MB SIMM, 70ns	124
16 MB SIMM, 70ns	569
8 MB SIMM, 70ns (PB180&c160)	369
Memory for new Macs	Call

Lifetime warranty on all SIMMs!  
Due to federal tariffs, SIMM prices may change  
significantly. Call for latest prices!

### Printers

Newgen 400dpi/600dpi	1649/1895
Newgen 11x17" 600dpi	3795
Texas Instruments TURBO	Call
Texas Instruments microLaser PS17	1199
Apple LaserWriter IIF/IIIG	2395/3195

## JetFill

Refills for Apple, Cannon, HP Ink Jet  
Printers. All in stock. Call for pricing.

### MacWEEK "every-other-week"

Look for MacNews Ads every-other-week. We've  
cut the costly expense of advertising in every issue -  
and passed the savings directly on to you. Just check  
our prices and look for us "every-other-week"!

# Mac News

1555 SHERMAN AVENUE SUITE 361 • EVANSTON, IL 60001

MacNews Sales Hours: M-TH 8am-7pm; Fri til 6pm (CT) Sat 10am-2pm

## 1-800-723-7744

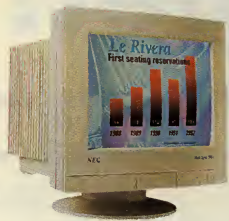
24hr Fax 312-871-4556 • International Orders Welcomed

Apple, Mac are trademarks of Apple Computer. Prices subject to change without notice. All returned orders may be subject to a minimum 15% restocking fee plus return shipping. Call for RMA before returning. All warranties on Macintosh or Apple brand products sold by MacNews will be honored by MacNews or its authorized agents only. All other manufacturer's warranties still apply.





# USA FLEX...For Great MAC Peripherals!



## NEC MultiSync® Monitors

All NEC monitors include Tilt/swivel base and are Mac® II/Quadra family compatible (w/cable adapter)

### 3FGx™ 15" Monitor \$609

- 1024 X 768 Non-interlaced @ 60 Hz
- .28mm Trio dot pitch
- 65 MHz max. video bandwidth

D1-NEC3FGX SRP \$799  
MAC CABLE PART # F1-MACADP

### 4FG™ 15" Monitor \$709

- 1024 X 768 Non-interlaced @ 70 Hz
- .28mm Trio dot pitch
- 75 MHz max. video bandwidth

D1-NEC4FG SRP \$949  
MAC CABLE PART # F1-MACADP  
4FG + MacFG™ 8X display interface card \$1339  
4FG + MacFG™ 24X display interface card \$1899

### 5FG™ 17" Monitor \$1249

- 1280 x 1024 Non-interlaced @ 74 Hz
- .28mm Trio dot pitch
- 135 MHz max. video bandwidth

D1-NEC5FG SRP \$1599  
MAC CABLE PART # 8325FG  
5FG + MacFG™ 24X display interface card \$2439

### 6FG™ 21" Monitor \$2299

- 1280 x 1024 Non-interlaced @ 74 Hz
- .28mm Trio dot pitch
- 135 MHz max. video bandwidth

D1-NEC6FG SRP \$2899  
MAC CABLE PART # 8325FG  
6FG + MacFG™ 24X display interface card \$3479

## SONY

### CPD-1304 14" Multiscan® Trinitron® Color Monitor \$569

- 1024 x 768 Non-interlaced
- .25mm Trio dot pitch
- 50MHz bandwidth (typical)

D1-S1304



### CPD-1604S 17" Multiscan® Trinitron® Color Monitor \$1049

- 1024 x 768 Non-interlaced
- .25mm Trio dot pitch
- 60MHz bandwidth (typical)

D1-S1604 SRP \$1700  
MAC ADAPTER TMACSTD \$16.95



### NEC MacFG™ 8X/24X Color Display Interface Card

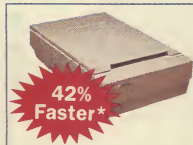
Combine the MacFG 8X or 24X with a MultiSync® FG™ monitor for the ultimate graphics subsystem for your Macintosh computer.

**MacFG 8X**  
\$639

FG8X SRP \$799

**MacFG 24X**  
\$1199

FG24X SRP \$1499



## EPSON

**ES-600C \$799**  
**ES-800C \$1099**  
**Color Scanners**

- 42% Faster\*
- 24-bit "TruePass" scanning capable of producing over 16.6 MILLION colors!
- ES-600C - SCSI I/F, 300 DPI
- ES-800C - SCSI & BIDI I/F, 400 DPI
- Optional Automatic Document Feeder and Transparency Unit

### MAC Interface Kit: CALL

- Adobe® Photoshop® 2.0
- PIM and DA Cable
- Epson's Apple scanner driver
- Interface kit is required (Sold separately)

\*Than the Epson ES-300C

## SPECIAL OF THE MONTH

### EPSON

### EPL-7500 POSTSCRIPT™ LASER PRINTER Incredible PostScript Price

The powerful EPL-7500, PC World's "Best Buy" and Info World's #1 PostScript laser printer!

- 6 pages per minute
- Adobe® PostScript with 35 typefaces
- Weitek XL-8200 series RISC processor
- 2MB memory, expandable to 6MB
- Parallel, serial, and AppleTalk® interfaces
- HP LaserJet Series II emulation
- 250 sheets input capacity



**\$799**  
NEW LOW PRICE B1-EPL7500



### NEC Silentwriter® 95f

#### Model 95f Rebate

FLEX PRICE \$1349  
NEC MAIL-IN REBATE - \$250  
YOUR COST AFTER REBATE \$1099



- 6 PPM PostScript® Level 2 and PCL 5
- AppleTalk/Parallel/Serial
- Automatic Emulation Switching • 2 MB exp. to 5 MB
- 35 Scalable & 22 HP fonts • Built-in env. feeder B1-NEC95f

### Silentwriter 95fx

Same as above with built-in plain paper send/receive fax capability B1-NEC95FX

#### Model 95fx Rebate

FLEX PRICE \$1649  
NEC MAIL-IN REBATE - \$250  
YOUR COST AFTER REBATE \$1399

Rebate offer ends April 30, 1993



### NEC Intersect™ CD-ROM CDR-37

\$439



- Fast 450ms access time
- 150 KB/second data transfer rate
- 64 KB cache memory
- Optional battery pack for portable operation
- 2 year manufacturer's warranty
- Includes MAC interface kit

D1-CDR-37 & CD-MA002



### NEC Intersect™ CD-ROM CDR-74 with MultiSpin™

\$619



- 280ms - Fastest Access Time Available
- 300 KB/second data transfer rate
- 64 KB cache memory
- Standard dust brush for added dust protection
- Includes MAC interface kit
- 2 year manufacturer's warranty

D1-CDR-74 & CD-MA002

For our full line of CD-ROM software titles dial FLEXFAX 1-708-351-5419



### SONY Reconditioned LASER LIBRARY.

D1-CD7205-R

**\$399**

- External CD-ROM Drive**
- <340 ms access time
- 150KB/sec. transfer rate
- 8K buffer
- Built-in audio
- Sony interface card
- Laser Library Installation Software**
- Laser Library Menu**

**Plus 7 Popular Software Titles**  
Including Compton's Family Encyclopedia™, MS Bookshelf™ 1991 Edition, National Geographic Mammals, Mixed-up Mother Goose™, Music Sampler, The Software Toolworks™ World Atlas and Languages of the World



### IBM® Personal Printers for Macintosh® by Lexmark™



True 600 dpi output...for under \$2000!

### IBM® LaserPrinter 6A \$1529

- Adobe® PostScript® software built in
- 300 dpi with PQET, Max. 600 dpi w/optional memory
- 10 MHz • 3MB • Up to 6 ppm
- AppleTalk®, Rasterport interface
- 39 Adobe® Type 1 scalable fonts
- 200 sht. paper cass.

4029021 SRP \$2199



### IBM® LaserPrinter 10A \$1959

- Adobe® PostScript® software built in
- 600 dpi with PQET • 16.7 MHz • 5MB
- AppleTalk®, Rasterport interface
- 39 Adobe® Type 1 scalable fonts
- Up to 10 ppm

4029041 SRP \$2799

Printers require MAC cable. Call for price.



Optional Accessories Available - CALL

## Dataproducts

### LZR™ 960 Adobe® PS Level 2 Laser Printer

- RISC-based Processor
- 300 dpi • 2MB • 9 PPM
- 35 resident typefaces
- LocalTalk/RS-422, Centronics parallel, RS-232-C serial & SCSI interface

B1-LZR960-001



### LZR 1560 Ledger/A3 Laser Printer

- 11 x 17" Imaging • Max. 400 dpi res.
- PostScript® Level 2 from Adobe® • 4MB
- 35 resident typefaces • Max 15 PPM

B1-1560-002



**\$2999**



### Our New Automated Fax Retrieval System

Information At Your Fingertips, 24 Hours A Day, 7 Days A Week.

FLEXFAX (708) 351-5419

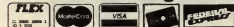
## USA FLEX TO ORDER: 1-800-678-0354

USA FLEX FAX # (708) 351-7204  
Gov./Education Sales 1-800-695-0249  
Gov./Education FAX 1-708-351-9871  
Habla Espanol 1-800-723-5500 or (708) 924-6780  
Pour les Francophones 1-800-723-2256 or (708) 582-6179



**ORDER INFORMATION:** Minimum order \$80. Minimum shipping and handling per order \$11.95. MasterCard, Visa and Discover accepted for USA, Canada, APO, FPO and Puerto Rico. FLEXCARD accepted for continental USA only. A \$10 surcharge on credit card orders for APO, FPO and Puerto Rico. C.O.D. order under \$500.00, add \$5.00; over \$500.00, add \$10.00 check warranty charge. Call for special UPS Red/Blue C.O.D. rates. APO/FPO, add 5% to cover additional shipping and handling. Call for PAL rates. **CORPORATE/GOVERNMENT ORDERS:** Corporations rated 1A1 or better and government agencies accepted on Net 30 terms with receipt of a valid purchase order. Leasing Plans available for qualified businesses only. **RETURN PRODUCT INFORMATION:** All returns must have prior authorization from our Customer Service Department (1-708-351-7172). All returns must be in as-shipped condition, with original packaging, including all warranty cards and manuals. Incomplete product returns, unauthorized returns and refused shipments are subject to a minimum 20% re-stocking charge. We will only accept returns on unopened and non-downloaded software. Software compatibility guaranteed only if we have downloaded it on your new FLEX system. Thirty(30) day money back guarantee applies to FLEX system only (does not include printers or other non-installed peripherals). All prices and specifications subject to change, without notice. Not responsible for typographical or printing errors. All trademarks and registered trademarks are of their respective holders. ©1993 USA FLEX.

471 Brighton Drive, Bloomingdale, IL 60108



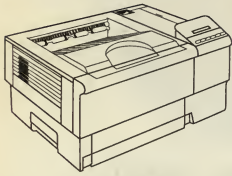
Code # MW0322



# Mac Peripherals That Meet Your Needs and Your Budget!

## Printers and Printer Accessories

### NEC



**Silentwriter® Model 95f** **\$1119<sup>†</sup>**  
†after \$250 mail-in rebate from NEC

- 2MB RAM / 6ppm printing
- 35 Adobe fonts / 14 HP fonts
- Automatically switches interface between Mac & DOS platforms
- Accepts fax upgrade
- 3-year on-site warranty\*

\*some restrictions apply

**Fax Upgrade for Model 95f** .....\$489

**2MB Memory for Model 95** .....\$119

**Toner Cartridge for 95/97** .....\$165

**Silentwriter Model 97** .....\$1499<sup>†</sup>

10 pages per minute; 2MB RAM; 35 Adobe fonts; 14 HP fonts. 3-year On-site warranty

**Silentwriter Model 97fx** .....\$1949<sup>†</sup>

Same as Model 97; includes PostScript® Fax option

†after \$250 mail-in rebate from NEC

**hp HEWLETT PACKARD**

**HP PaintWriter XL**

11" x 17" and 8.5" x 11"

**\$499**  
 Only while supplies last!  
 color output, Built-in Apple-Talk, automatic sheet feed, fast print speed, shared or high-volume use.

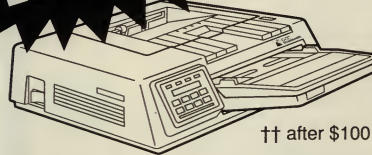


**Special Offer**

**Great Low Price**



**GCC TECHNOLOGIES**



**BLP Elite™**  
**\$999<sup>††</sup>**

†† after \$100 mail-in rebate from GCC

The efficient, cost-saving PostScript GCC BLP Elite printer features edge-to-edge printing, straight-through paper path, full 200 sheet paper tray, 4 pages-per-minute printing, 16.67 MHz engine speeds processing, and one year warranty.

**GCC WriteMove® II.** .....\$499

For your PowerBook. Only 2.5 pounds, battery-powered, 360x360 dpi laser-quality output, includes ATM™, 21 fonts, background printing, and On-Screen Page Preview.

**GCC PLP™ II.** .....\$769

The only QuickDraw laser printer with edge-to-edge printing. Clear, crisp laser printing at 300 dpi, 21 Adobe fonts, ATM included, TrueType compatible, PostScript upgradeable.

**GCC SelectPress™ 600** .....\$4149

True 600x600 dpi, PostScript Level 2 compatible, 35 resident fonts; wide spectrum of paper sizes—A6 to tabloid. Edge-to-edge printing with full bleed capability on 11"x17". Automatically switches between Mac or PC. One year warranty.



**Dataproducts®**

**LZR 1560™ Ledger/A3 Laser Printer**

15 PPM; 300 or true 400 dpi resolution, 4MB RAM; Adobe PostScript Level 2; supports 11"x17" (ledger) size paper; models with one, two or three 250 count input trays

**LZR 1560 with Two Trays** .....\$2999

**1560 Toner.** .....\$249

**1560 Legal Cassette.** .....\$69

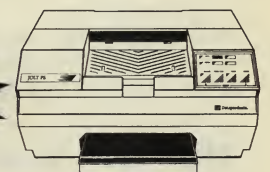
**1560 Ledger Cassette.** .....\$69

**LZR 960™ Printer.** .....\$1599

Unsurpassed performance for Mac users. 300 dpi; 9 ppm printing; 2MB RAM; Adobe PostScript Level 2; 35 resident fonts

**JOLT™ PS Color Printer**

**\$4249**



Integrate vibrant color into documents on a wide variety of office papers; 300 dpi output; 1ppm for color output—the fastest device of its kind. PostScript Level 2, 6MB RAM

**JOLT Transparency Enhancer.** .....\$293

**960 Legal Cassette.** .....\$39

**960 Toner Kit.** .....\$49

**960 2MB Upgrade.** .....\$269

## Monitors and Graphics Cards

### NEC

**MultiSync® 3FGx™**  
**\$599**

Great for general business, presentations, graphics, and windowing applications. 15" diagonal, .28mm dot pitch; 65MHz bandwidth, 1024x768 non-interlaced.

**MultiSync 4FG™** (MacUser ) .....\$719

15", .28mm dot pitch, 75MHz, 1024x768 non-interlaced

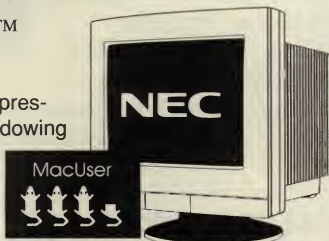
**MultiSync 5FG** .....\$1249

17", .28mm dot pitch, 135MHz, 1024x768 non-interlaced

**MultiSync 6FG** (MacUser ) .....\$2349

21", .28mm dot pitch, 135MHz, 1280x1024 non-interlaced;

**Free Monitor Lens from NEC with 6FG purchase!**



**\$100 Rebate**

Get a \$100 rebate from NEC when you purchase a MacFG 24Xp card with either a 15" or 17" MultiSync FG monitor. Call for details. Offer ends June 30, 1993.

**NEC MacFG24xp card.** .....\$549

24-bit color NuBus card with QuickDraw acceleration

**NEC MacFG8x card.** .....\$639

8-bit color NuBus card with QuickDraw™ acceleration

**NEC MacFG24x card.** .....\$1199

24-bit color NuBus card with QuickDraw acceleration

### SONY



**Sony CPD-1320UC2** 14" Trinitron® .....\$349

**Sony CPD-1604S** 17" Trinitron Multiscan® .....\$1049

**Sony GDM-2036S** 20" Trinitron Multiscan® .....\$2099

### SUPERMAC™

**SuperMac Spectrum/8-24 PDQ™ si** .....\$369

Fast & versatile graphics card for fast 8-bit color on large displays; 16-bit color on 15", 16", and 17" displays and accelerated 24-bit color on small displays.

**SuperMac Graphics Cards**

**SuperView™** .....\$379

**Spectrum/8™ si** .....\$249

**Spectrum/8-24™ PDQ si** .....\$369

**VideoSpigot™ si** .....\$249

**Spectrum/8™** .....\$399

**Spectrum/8-24™ PDQ** .....\$799

**Spectrum/24™ Series IV** .....\$799

**Spectrum/24™ PDQ+** .....\$1489

**SuperMac ThunderStorm™** .....\$799

**SuperMac Thunder II™** .....call

**SuperMac VideoSpigot Pro** .....\$1039

**SuperMatch™ 17" Multimode Color** ...\$949

Mac & PC compatible, works w/ Quadra motherboard graphics.

**SuperMatch 17-T Trinitron® Color** ....\$1049

1024x768 full-page. Compatible w/ Quadra built-in video.

**SuperMatch 20" Color Display.** .....\$1479

Unsurpassed color, full-page WYSIWYG resolution.

**SuperMatch 20-T Color MultiMode** ...\$2449

20" Trinitron® display. Mac and PC compatible.

**SuperMatch 20" Color Dual Mode.** ...\$2449

Flexible viewing, realistic colors for design and publishing

**SuperMatch 21" Two-Page Color** ....\$2449

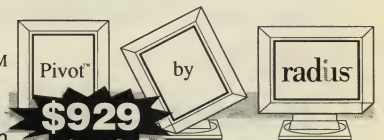
Use directly with Quadra on-board video.

**SuperMac DigitalFilm™** .....call

Includes DigitalFilm Player, DigitalFilm Recorder, and DigitalFilm Encoder, Breakout Box, and Adobe Premiere™ 2.0.

### radius™

**Radius™ PrecisionColor™ Pivot® Display**



**\$929**

15-inch, dual-orientation, anti-glare, color full page display compatible with all Color Pivot interfaces (256 colors) and most Precision Color interfaces. Works with Quadra's built-in video and PowerView™.

**Radius Color Display/21™** .....\$2969

21-inch color display for Macintosh (NuBus™) computers. Displays two facing pages in a resolution of 1152x870 at 75 Hz and 78 dpi. Also supports 1072x810 for WYSIWYG (72 dpi) display.

**Radius Monochrome**

**Two Page Display/19.** .....\$849

19-inch, landscape, Two Page display display for Mac and PC computers. Mac resolution is 1152x 882 at 71Hz at 82 dpi.

**Radius PrecisionColor Display/20S.** ...\$2329

20-inch multi-frequency Trinitron® color display for Macintosh and PC computers. "On-the-fly" resolution switching. Comes with PrecisionColor software bundle.

**Radius Graphics Cards & Interfaces**

**Color Pivot Interfaces** (NuBus, IIsi, LC, SE/30) .....\$499

**Two Page Display interface** (NuBus, IIsi, SE/30) .....\$379

**PrecisionColor 8X Card** .....\$749

**PrecisionColor 8XJ Card** .....\$489

**PrecisionColor 24X Card** .....\$1629

**PrecisionColor 24XP Card** .....\$489

**Radius Rocket 25i™** .....\$1189

**Radius Rocket 33i™** .....\$1979

**VideoVision™** .....\$1919

**Radius ImpressIt™ software** .....\$149

**Radius PrecisionColor software** .....\$247

**RocketShare™** .....\$399

## SYEX EXPRESS

1030 Wirt Rd. #400, Houston, Tx 77055



To Order Call: **1-800-BUY-SYEX**  
 1-800-289-7939

International and Canadian Orders fax to (713) 956-5741  
 or call (713) 957-1999



When you need the right solution now, SYEX Express should be the first place you look. Selecting what you need from our huge stock of Macintosh peripherals saves you time, and our low prices save you money. We'll help you find the peripherals that fit your needs and your budget.

# SYEX EXPRESS

## 1-800-BUY-SYEX

1-800-289-7939

International and Canadian Orders  
fax to (713) 956-5741 or call (713) 957-1999



Selling Macintosh  
Solutions & Peripherals

### DAYSTAR DIGITAL

33 MHz Turbo 040 .....	\$1349
FastCache Turbo 33 .....	\$349
50 MHz PowerCache with 68882 .....	\$849
PowerCache Adapter IIsi .....	\$40
PowerCache Adapter II .....	\$40
PowerCache Adapter LC .....	\$40
PowerCache Adapter IIX .....	\$40
FastCache Quadra - 700, 900, 950 (128K) .....	\$399

## Storage Devices



425MB internal, 9ms .....	\$899
520MB internal, 9ms .....	\$999



128MB Magneto Optical  
Disk Drive

RMO-S350 3.5" with Mac kit .....

Sony 650MB Magneto Optical Disk Drive

RMO-S550 5.25" with Mac kit .....

128MB Optical Cartridge .....

650MB Optical Cartridge .....

## NEC CD-ROM Drives

CDR-25 Express™ Bundle .....

CDR-25 with 1 pair amplified stereo speakers, stereo headphones, and 10 new CD titles.

CDR-74 w/ CD Gallery .....

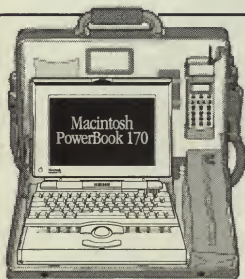
CDR-74 with CD Gallery includes 1 pair amplified stereo speakers, headphones, and 6 CD titles.

## Removable Cartridges



SyQuest®

45MB .....	\$65
88MB .....	\$105



### NEC Cellular PowerBook Kit

- INT1202 Intelligent cellular interface
- NEC P200/300 Portable Cellular phone
- Stylish Leather Attaché PowerBook not included

### Fax, Link, Compute and Call from wherever you are!

Connect your Macintosh PowerBook to the Cellular PowerBook Kit and fully utilize your PowerBook wherever you go! Send & receive data transmissions, or link to computers & fax machines. Gain access to local & international telephone services.

To Order Call 1 (214) 879-0033

## Modems



SupraFAXModem™

144PB. ....

For PowerBook models 100 through 180.  
14,400 bps data and fax transmission.

Supra FAXModemV.32bis. ....

14,400 bps data and send/receive fax transmission. Includes FAXstf™, Microphone™ 1.6 software and cable.

Supra FAXModem+. ....

## Global Village Modems

PowerPort/Gold™ .....

14,000 bps data ; 9600 bps fax send/receive

PowerPort/Silver™ .....

9600 bps data ; 9600 bps fax send/receive

PowerPort/Bronze™ .....

2400 bps data; 9600 bps fax send; 4800 bps fax receive



GLOBAL VILLAGE

## Scanners

### UMAX®



UMAX UC-630. ....

600 dpi color scanner with PhotoShop®

Transparency/Slide Scanner

Option for UC-630. ....

## Docking Stations



E-MACHINES



PowerLink™ Presenter. ....

It turns your PowerBook Duo into a presentation machine. Connects Power-Book Duo to large screen displays, televisions, LCDs and projectors.

E-Machines PowerLink DeskNet™ .....

The only desktop dock with full-speed Ethernet. Choose 10BaseT or Thin Ethernet.

## Memory

1MB SIMMs .....

2MB SIMMs .....

4MB SIMMs .....

4MB SIMMs for LC III, Centris & Quadra 800 .....

8MB SIMMs for LC III, Centris & Quadra 800 .....

16MB SIMMs .....

16MB SIMMs for LC III, Centris & Quadra 800 .....

256K VRAM .....

### PowerBook Memory Modules

4MB for PowerBook 160/180 .....

4MB for PowerBook Duo 210/230 .....

6MB for PowerBook 140/170 .....

8MB for PowerBook Duo 210/230 .....

10MB for PowerBook 160/180 .....



PhoneNET® Ethernet

Cards 10T Nubus .....

Timbuktu® .....

with any Farallon purchase

EtherMac™ II 10T .....

EtherMac LC 10T .....

EtherMac II Thinnet .....

PhoneNET StarController® 12 Port .....

PhoneNET StarController EN™ .....

PhoneNET StarController 24 Port .....

Ether10-T Starlet™ .....

Timbuktu/Windows .....

PowerPath .....

LocalPath .....

PhoneNET Liaison™ .....

AppleTalk software router for LocalTalk and EtherTalk, and TokenTalk.

PhoneNET Talk™ .....

PhoneNet Talk software gives IBM-compatible PCs running DOS or Windows full access to AppleTalk networks.

Complete line of Farallon products available



Thin FriendlyNet® Media Adapter .....

10BASET FriendlyNet Media Adapter .....

MacCon+LC .....

MacCon LC/10T .....

MacCon+IIE64 .....

MacCon+IIE64 .....

MacCon3 NuBus .....

MacCon3 for IIsi .....

MacCon+ 30IE64 .....

MacCon+ 30IET64 .....

EN/SCT 10BaseT SCSI Adapter .....

EN/SC PB 10BaseT for PowerBook .....

10T Hub/8 .....

10T Hub/12 .....

Complete line of Asanté products available



Dayna PathFinder .....

SCSI/Link™ .....

SCSI/LinkT PB 10T for PowerBook .....

DaynaPORT™ E/II-T .....

DaynaPORT Mini Hub/8 .....

EtherPrint-T .....

EtherPrint™ Plus .....

DaynaPORT E/II .....

DaynaPORT E/LC .....

DaynaPORT E/SI .....

Complete line of Dayna products available

## ExpressNet

### FREE Network Consultation

SYEX Express can provide network consultation at no charge. Simply fax your network needs and a list of your systems, including hosts, to SYEX Express (713) 956-5741, and our systems engineers will fax back a networking solution that fits your needs—all at no charge.

Corporate POs  
Accepted

International  
Orders fax to:  
(713) 956-5741

• Discover, MasterCard and VISA only. • Prices and product availability subject to change without notice. All specials and promotions are limited to available stock. • Manufacturer's warranties are honored by SYEX Express as well as the original manufacturer. • We ship via Airborne Express Overnight service. (Some rural areas require an extra day for delivery.) UPS rates are available upon request. • Orders placed by 4 p.m. CST weekdays for "in stock" items will ship that day for overnight delivery. • APO/FPO box orders are shipped first class U.S. Mail. P.O. Boxes shipped via US Mail. • We are not responsible for typographical errors. • Defective software will be replaced immediately, and hardware will be repaired or replaced at our discretion. • A Return Authorization Number is required for any product returned. • All trademarks or registered trademarks are property of their respective owners.

## 1-800-BUY-SYEX

1-800-289-7939

Open: Mon-Fri: 8 a.m. to 7 p.m.

Sat: 10 a.m. to 5 p.m.  
(Central Standard Time)



# TELL US YOUR NEEDS...

## PRINTERS



TI MicroLaser Plus

**\$1195**

### Texas Instruments

MicroLaser Plus w/AppleTalk ..... 1,195  
MicroLaser XL Turbo ..... 2,789

### Lexmark IBM

LaserPrinter 6P ..... 1,549  
LaserPrinter 6A ..... 1,729  
LaserPrinter 10L ..... 1,719  
LaserPrinter 10A ..... 2,219

## NEC

SilentWriter Model 95 ... 1,495

## Panasonic

Postscript KX-P4455 ..... 1,979



NEC SilentWriter Model 95

**\$1495**



## COSTAR CORP.

LabelWriter II ..... 185  
LabelWriter II Plus ..... 250  
AddressExpress ..... 689  
AddressWriter ..... 465

We also stock LabelWriter II and LabelWriter II Plus labels. Please call us for best pricing and quantity discounts.

CoSTAR LabelWriter II

**\$185**

**\$85**

CoSTAR Stingray Turbo  
Mouse



## MISCELLANEOUS

SIMMs Installation Toolkit ..... 8  
Maxima 2.0 ..... 44  
Optima / 32 ..... 149  
Virtual 3.0 ..... 139  
LC Video-RAM 512K ..... 50  
Quadra Video RAM (256K-80ns) ..... 31  
Mac 101 Keyboard ..... 120  
Kensington Turbo Mouse ..... 106  
LC 16mhz Math Co-Processor ..... 59  
Classic II Math Co-Processor ..... 59  
TechWorks Cache Card IIci ..... 145  
Tech Works IIci PDS Adaptor (20MHz) 95

## LB INDUSTRIES



Wristsaver: ..... 12  
Wristwaver Mousepad ..... 12  
Wristsaver/Mousepad bundle ..... 20  
Your choice of Royal Blue, Red, Black, Gray, Navy

## MISCELLANEOUS HARDWARE

Rasterops 24STV Video Display Brd . 789  
Video Spigot NuBus ..... 469  
Video Spigot IIsi ..... 379  
Video Spigot LC ..... 399  
Video Spigot Pro NuBus ..... 1,369  
Video Spigot Pro IIsi ..... 1,285

## MODEMS

## DOVE COMPUTER CORP



DoveFax PB ..... 99  
The DoveFax PB features a 9600 bps send/4800 bps receive Group III fax modem and a 2400 bps Hayes compatible data modem for the PowerBook



DoveFax Pro + V ..... 489  
The DoveFax Pro+ Voice features a 14.4 kbps send/receive personal fax machine, a 14.4 kbps data modem plus a voice answering system for your Macintosh.  
DoveFax 144E ..... 299  
The Dove Fax 1443 is an external Group III S/R fax modem with fax software and 14.4 kbps modem with v.42bis.

## COMPARE OUR SHIPPING PRICES

AIRBORNE EXPRESS OVER NIGHT **\$6** AND UP • UPS GROUND **\$5** AND UP  
Orders received before 7:30 PM Eastern time weekdays ship the same day. • We export to most countries in the world. 2-3 days delivery to most countries. • Prices subject to change. Quantity pricing for dealers. • All returns require approval and are subject to a restocking fee. American Express, Visa, MasterCard, & Discover Cards gladly accepted.  
Your card is not charged until the order is shipped.

**FAX YOUR ORDER 24 HOURS A DAY (206) 454-7302**

# THE LLB COMPANY

300 - 120TH Ave. NE • Bldg 1, Suite 120 • Bellevue, WA 98005 • (206) 454-7258



# 1-800-848-8967

7:00 A.M. to 6:00 P.M. M-F • 9:00 A.M. to 4:00 P.M. Sat. • Pacific Standard Time



# GET THE BEST SOLUTION

## MORE MODEMS



Supra v.32bis S/R Fax

**\$349**

### Supra

v.32bis S/R Fax 14.4 .....	305
v.32bis S/R Fax 14.4w/cbl & SW .....	349
2400 Modem ONLY (NO CABLE) .....	74
Fax 2400/9600/9600 .....	169

### Global Village

PowerPort Gld 14.4/96 .....	438
PowerPort Silver 96 .....	375
PowerPort Brnz 24/96 .....	208
Teleport Gold 14.4/14.4 .....	438
Teleport Silver 96 .....	375
Teleport Bronze 24/96 .....	208

### Zoom Modems

AMX 2400 bps Modem .....	68
FXV 2400/9600 S/R Fax .....	139
VFXV 32 bis 14.400 fax .....	279



**\$188**

### PSI

PowerModem for PB

Power Modem for PB 24/96/48 .....	188
Power Modem III for PB 96/96 .....	375
Power Modem IV for PB 14.4 .....	438

## POWERBOOK MEMORY

2 MB Upgrade- PB100/140/170 .....	85
4 MB Upgrade- PB100 .....	195
6 MB Upgrade- PB100 .....	249
4 MB Upgrade- PB140/170 .....	195
6 MB Upgrade- PB140/170 .....	239
4 MB Upgrade- PB160/180 .....	199
6 MB Upgrade- PB 160/180 .....	279
8 MB Upgrade- PB 160/180 .....	385
10 MB Upgrade- PB 160/180 .....	465
4 MB Upgrade - PBD40 210/230 .....	210
8 MB Upgrade PBD40 210/230 .....	379

## POWERBOOK ACCESSORIES

Carrying cases Black/Blue/Teal .....	75
140/170/160/180 Replmnt Battery ....	79
External Battery Charger (PB100) ....	145
Battery Chgr (PB140/170/160/180) ..	149
Automobile Powerbook Adapter .....	69
CPU- Connectix Powerbook Utilities ..	45
PowerBook Installation Kit .....	7 <sup>50</sup>



**\$799**

BookView Imperial

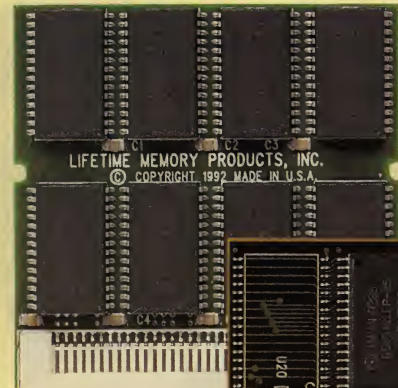
## BOOKVIEW™ IMPERIAL

BookView Imperial provides the ability to use a variety of large screen displays, up to 19" monitors, adding even more flexibility to the PowerBooks.

Bookview Imperial offers the following:

- 8-bit color (256 color) upto 19" monitors
- Interface to most monitors
- Adapter fits in PowerBook Case
- Piggyback Apple 2MB RAM card, for 8 MB total RAM
- 1 year warranty
- Low power Consumption.

## SIMMS FOR YOUR NEW

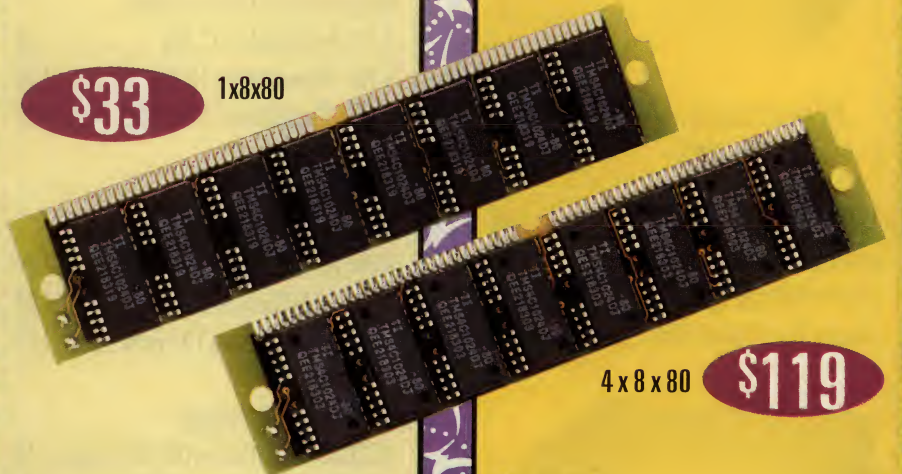


8 MB Upgrade-  
PB DUO 21/0230

**\$379**

**\$33**

1x8x80



4 x 8 x 80

**\$119**

1x8x80 .....	33
1x8x70 .....	35
1x8x60 .....	37
1x8x100 .....	31
1x8x80 (fx) .....	35
1x8x70 (fx) .....	37
2x8x80 .....	61
2x8x70 .....	63
4x8x80 .....	119
4x8x70 .....	121
4x8x80 (fx) .....	122
4x8x70 (fx) .....	124

## POWERBOOK DUO

**\$210**

4 MB Upgrade-  
PB DUO 210/230

4x8x80 (II/IIx) .....	133
4x8x70 (II/IIx) .....	135
8x8x80 .....	299
8x8x80 (fx) .....	299
16x8x80 (High Profile) .....	475
16x8x80 (Low Profile) .....	599
16x8x80 (fx) .....	489
1 MB Classic Expansion Card .....	59
3 MB Classic Expansion Card .....	115
1x9x70 (PC) .....	38 <sup>50</sup>
4x9x70 (PC) .....	130
Mac Portable 3MB .....	410
Mac Portable 4MB .....	449

# THE LLB COMPANY

300 - 120TH Ave. NE • Bldg 1, Suite 120 • Bellevue, WA 98005 • (206) 454-7258



# 1-800-848-8967

7:00 A.M. to 6:00 P.M. M-F • 9:00 A.M. to 4:00 P.M. Sat. • Pacific Standard Time



# ORDER TODAY...

## PLI DRIVES



PLI Infinity 88 Turbo **\$639**

PLI Super Floppy .....	319
Infinity Floptical 21 MB .....	379
Infinity 40 Turbo .....	519
Infinity 88 Turbo .....	639
Infinity 88RW44 .....	699



PLI Multi-Session  
CD-ROM **\$699**

PLI Multi-Session CD-ROM .....	699
Infinity 3.5" 128 Optical .....	1,279
Infinity 600 MB Optical .....	2,629
Infinity MaxOptical 1GB .....	3,599



PLI 85 MB Turbo  
External HardDrive **\$439**

85MB Turbo External .....	439
170 MB Turbo External .....	539
212 MB Turbo External* .....	649
425 MB Turbo External* .....	1,379
520 MB Turbo External* .....	1,449
1 GB Turbo External* .....	1,949
Quick SCSI NuBus Card .....	359

\*Quick SCSI will increase the performance of these drives

## REMOVABLE MEDIA



**\$16**

Datalife Mini Cartridge—  
Starting at . . .

### Verbatim

Datalife 3-1/2" Micro disks	
09900 2S2D Qty. 10 .....	8 <sup>90</sup>
87573 2SHD Qty. 10 .....	13 <sup>80</sup>

### Verbatim Brand Optical Disks

3-1/2 Rewritable 512 B/S .....	45
5-1/4" Rewritable 512 B/S .....	139
5-1/4" Rewritable 1024 B/S .....	139

### Datalife 8mm/4mm

Computer Grade Data Cartridges	
8MM DC 112Meters/367 Feet .....	12 <sup>90</sup>
4MM DC 90Meters/295 Feet .....	16 <sup>90</sup>
4MM DC 50 Meters/197 Feet .....	13 <sup>90</sup>

### Datalife Mini Cartridges

DC2000 Formatted w/QIC 40 Format ..	16
DC2080 Formatted w/QIC 80 Format ..	19
DC2120 Formatted w/QIC 80 Format ..	21

## PINNACLE MICRO



650MB Optical Drive .....	2,875
PMO 130 .....	1,559

## A Special Message for You

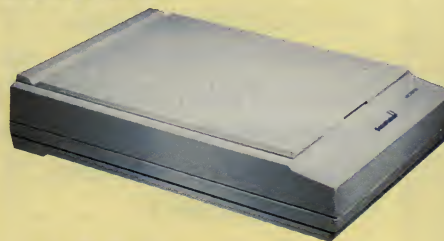
As you review these pages you will see lots of competitive prices. The LLB Company offers more — quality products, service, and availability — all backed by knowledgeable sales associates.

We constantly monitor the market, follow up on latest technologies and product developments to bring you the new products at competitive prices that you have come to expect from the LLB Company.

As we expand our product line, we never fail to remember that we exist because of the loyalty of our clients. We hope to continue to earn your trust by doing what we are good at — delivering to you, on time, what you need at a competitive price.

— Almas Kabani, President

## SCANNERS



**\$889**

ScanMaker II

### Microtek

ScanMaker II Color .....	889
Scan Maker HX Color .....	1,179



**\$879**

### UMAX®

ScanOffice ..... 879

UMAX OA-1 600 dpi (interpolated to 1200 dpi), 256 grayscale scanner. The total scanning solution for the office.

UC840 ..... 1,369

The UMAX UC840 captures 16.8 million colors with a variable scanning resolution from one to 800 dots per inch. The UC840 merges award-winning technology with state-of-the-art craftsmanship, presenting crisp and clear images.

## COMPARE OUR SHIPPING PRICES

AIRBORNE EXPRESS OVER NIGHT **\$6** AND UP • UPS GROUND **\$5** AND UP  
Orders received before 7:30 PM Eastern time weekdays ship the same day. • We export to most countries in the world. 2-3 days delivery to most countries. • Prices subject to change. Quantity pricing for dealers. • All returns require approval and are subject to a restocking fee.

American Express, Visa, MasterCard, & Discover Cards gladly accepted.

Your card is not charged until the order is shipped.

**FAX YOUR ORDER 24 HOURS A DAY (206) 454-7302**

# THE LLB COMPANY

300 - 120TH Ave. NE • Bldg 1, Suite 120 • Bellevue, WA 98005 • (206) 454-7258



# 1-800-848-8967

7:00 A.M. to 6:00 P.M. M-F • 9:00 A.M. to 4:00 P.M. Sat. • Pacific Standard Time



# GET IT TOMORROW!

## MASS Microsystems



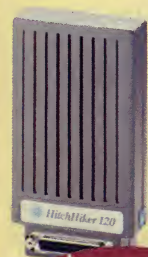
### DiamondDrive™ External Hard Drives

Diamond Drive high performance hard drives give you the ultimate high capacity storage solutions at an affordable price.

120 MB .....	479
210 MB .....	629
510 MB .....	1,359
1000 MB .....	2,289
1800 MB .....	2,709

### HitchHiker Hard Drive

**\$739**



**\$779**

HitchHiker for the PowerBook

### HitchHiker™ Ultra-Compact Hard Drives

Pocket size external enclosure, platinum color. Weighs less than 10 ounces.

80 MB .....	599
120 MB .....	739

### HitchHiker Drives for the PowerBook

80 MB .....	629
120 MB .....	779

### DataPak External SyQuest Drives

44 MB .....	509
88 MB (R/W 44 MB) .....	678

### DataPak External Magneto-Optical Drives

128 MB .....	1,429
650 MB .....	3,059

### DataPak CD-ROM Drive

Zero-footprint enclosure, system cable, external active terminator, Audio CD software, CD Caddy.

CD ROM - MultiSession .....	699
-----------------------------	-----

## FWB, INC.



FWB

PocketHammer 100

**\$705**

PocketHammer 100 .....	705
PocketHammer 240 .....	1,139
hammer240is .....	899
hammerDisk130 Optical .....	1,579
hammerDisk44 .....	719
hammerDisk88 .....	839
hammerPB120 .....	789



SyQuest 44MB Cartridge

**\$63**

## MORE REMOVABLE MEDIA

SyQuest 44MB Cartridge .....	63
SyQuest 88MB Cartridge .....	99
Optical Cart/Verbatim (Single) 256MB .....	95
Optical Cart/Verbatim (Single) 128MB .....	45
Optical Cart/Komag (Single) 128MB .....	45
Bernoulli 40MB Cartridge (3 Pack) .....	270
Bernoulli 90MB Cartridge (3 Pack) .....	435
Floptical Disc 21 MB .....	24

## ASANTÉ

Maccon + IleThink/Thin (64) .....	169
Maccon + Thick/10Base T (64k) .....	169
Maccon + Thick/Thin/10Base T (64k) .....	239
Maccon + 30le Thick/Thin (64k) .....	169
Maccon + Thick/Thin/10Base T (64k) .....	249
Maccon + Ilsi Thick/10Base T (64k) .....	250
Maccon + Ilsi Thick/Thin/10 T w/FPU .....	299
Maccon + LC En 10LC to 10Base T ... ..	169
Maccon + LC/LCII Thin w/FPU .....	289
Maccon + LC 10Base T w/FPU .....	169
Maccon SE Thick/10Base T (32k) .....	169
Ilsi/SE/SE30 Frien Net/10Base T (16k) .....	239
Ilsi/SE30 Thick/Thin w/FPU (16k) .....	169
Ilsi/SE30 Thick/10Base T (16k) .....	179
10T Hub w/12 10T Thick/Thin/10 T .....	499
Hub 1012 & View/Mac 2.0 .....	1,349
10Base T Hub w/8 Thin Port .....	258
SCSI Ethernet Thick/Thin/10Base T .....	290
SCSI Ethernet for PB, 10Base T .....	290
SCSI Ethernet 10 T (w/SCSI Cable) .....	259
SCSI Enet/PB Thick/Thin/10 T w/Cable .....	359
MAU 10Base T Media Attachment .....	89
Friendly Net Adaptor - 10Base T .....	89
Friendly Net Adaptor - Thin .....	89
Friendly Net Adatper - Thick .....	89
Asante Print .....	349
Asante Print Thick/Thin .....	359

## ACCELERATORS

New Life Classic (16MHz) .....	569
Quadra Overdrive for Quadra 900 .....	239
Novy Quick 30 Mac Plus (25MHz) .....	525
Novy Quick 30 Mac SE (25MHz) .....	525

**DAYSTAR**  
DIGITAL

ComboCache Ilsi .....	209
ComboCache Ilsi w/FPU .....	299
DualPort Ilsi w/20MHz FPU .....	169
Equalizer LC .....	169
Equalizer LC w/FPU .....	239
RAM Power Card .....	429

## DAYSTAR DIGITAL



### Universal PowerCache

The PowerCache is an award winning design that gives you affordable 68030 performance and the best in compatibility. Just plug it in and go... no downtime and it works with everything.

33MHz .....	389
33MHz w/FPU .....	479
40MHz .....	559
40MHz w/FPU .....	649
50MHz .....	739
50MHz w/FPU .....	869
Adaptor (All Mac LC and II's, PDS) .....	41
Adaptor (All Mac SEs and Classics) .....	85



### NEW! Turbo 040 Accelerators

Get the maximum in 68040 acceleration with all the compatibility of the PowerCache. The effective way to increase your productivity up to four times as fast! Optional 128k cache boosts performance another 4-50%.

25 MHz Turbo 040 .....	1,129
33MHz Turbo 040 .....	1,389
FastCache Turbo 25 .....	259
FastCache Turbo 33 .....	345
FastCache Ilsi .....	279
FastCache Ilsi w/FPU .....	349
FastCache Ilici .....	205
FastCache Quadra 700/900 .....	269
FastCache Quadra 700/900/950 .....	409

**DAYSTAR**  
DIGITAL

**THE LLB COMPANY**

300 - 120TH Ave. NE • Bldg 1, Suite 120 • Bellevue, WA 98005 • (206) 454-7258



**1-800-848-8967**

7:00 A.M. to 6:00 P.M. M-F • 9:00 A.M. to 4:00 P.M. Sat. • Pacific Standard Time



# 800-622-6885

## UPGRADING YOUR MAC IS EASY WITH THE PROS AT MACOUTLET!

### PinPoint 20" Multiscan Trinitron

MONITOR —\$1799.  
8-BIT SYSTEM—\$2099.  
24-BIT SYSTEM—\$2649.

NO SURCHARGE  
ON VISA,  
MASTERCARD, AND  
DISCOVER

TOLL FREE LINE  
FOR BOTH ORDERS  
AND TECHNICAL  
SUPPORT

AMERICAN EXPRESS  
ACCEPTED

FULL FACTORY  
WARRANTY ON ALL  
PRODUCTS

BEST TECHNICAL  
SUPPORT AVAILABLE

FREE T-SHIRT  
WITH ALL ORDERS  
OVER \$1000.

30 DAY MONEY  
BACK GUARANTEE

### RasterOps

24XLI  
Accelerated color card \$1899.  
2075M 20" Multiscan Trinitron \$2299.  
NEW! MoviePak  
Full Motion, Full Screen Video CALL  
24STV \$779.  
Sweet 16 CALL  
15" Portrait \$489.

### Daystar Digital

Universal Power Cache  
33MHz \$395.  
Universal Power Cache  
40MHz \$575.  
Universal Power Cache  
40MHz w/68882 \$679.  
Universal PowerCache  
50MHz \$749.  
Universal PowerCache  
50MHz w/68882 \$879.  
Turbo 040  
33MHz 040 CALL

### NEC

NEW 3FGX 15" MultiSync  
Monitor \$639.  
NEW 4FG 15" MultiSync  
Monitor CALL  
NEW 5FG 17" MultiSync  
Monitor CALL

### MASS Micro

44 Meg SyQuest Removable Drive  
With Software Bundle And Cartridge \$479.  
88 Meg SyQuest Removable Drive  
With Software Bundle And Cartridge \$589.

### SuperMac

Spectrum 24 Series IV/Trinitron  
System  
24 bit accelerated card with SuperMatch  
20 Multiscan Trinitron \$3349.  
Spectrum 8-24 PDQ SuperMatch  
20" System  
Accelerated video card with 20"  
SuperMatch \$2349.  
Spectrum 24 Series IV/  
SuperMatch 17T Trinitron System \$1895.  
Spectrum 8-24 / 8-24 PDQsi \$839.

### Lapis

ColorServer 8  
8-Bit color video for SE/30 \$349.  
ProColor Server 8•16  
8/16-Bit color video for SE/30 \$399.  
19" Grayscale w/card \$1149.  
19" Monochrome w/card \$925.  
15" Portrait Display w/card \$549.

### Umax

UC630 600dpi Color Scanner  
w/Photoshop (full ver.) CALL  
UC840 800dpi Color Scanner  
w/Photoshop \$1245.  
Transparency/Slide Scanner  
Option CALL  
Automatic Document Feeder CALL

### Radius

Rocket 33 — 33 Mhz '040  
Accelerator CALL  
VideoVision  
Complete QuickTime MultiMedia Video  
Solution, With Sound! CALL  
Pivot/Color Pivot CALL

### Magnavox

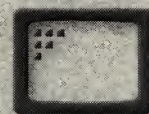
Magnavox Profesional 14"  
Color Monitor \$399.  
Magnavox 8/24 Bit Color Bundles  
\$699./\$839.  
Magnavox 17" Multiscan  
Display \$829.

### Sony

1304 13" Trinitron \$649.  
1604 16" Trinitron \$1149.

### Relisys

600 DPI Color Scanner  
Great cold lamp technology, includes full  
Photoshop \$999.  
800 DPI Color Scanner  
Great cold lamp technology, includes full  
Photoshop CALL



## MacOutlet

48501 Warm Springs Blvd. #102, Fremont, CA 94539  
(510) 623-8890 Fax(510) 623-8894



# TECHWORKS™



TECHWORKS OFFERS AN EXTENSIVE LINE-UP OF MACINTOSH PERFORMANCE ENHANCEMENT PRODUCTS. EACH PRODUCT, LIKE A GREAT WORK OF ART, IS BUILT TO STAND THE TEST OF TIME. SEE YOUR MAC AND YOUR FAVORITE SOFTWARE PERFORM ITS BEST. INVEST IN TECHWORKS PERFORMANCE ENHANCEMENTS.

## MACINTOSH ACCELERATORS

PUT YOUR MAC IN HIGH GEAR WITH TECHWORKS ACCELERATOR CARDS. AVAILABLE IN 25MHZ, 33MHZ AND 40MHZ SPEEDS.

## MEMORY & VIDEO RAM

UPGRADE YOUR MAC TO THE MAX WITH TECHWORKS MEMORY AND VRAM KITS. MORE COLOR POWER FOR YOUR LC, FASTER COLOR FOR YOUR QUADRA!

## CACHE CARDS & FPUS

SATISFY YOUR NEED FOR SPEED WITH TECHWORKS CACHE CARDS AND FPUS.

## POWERBOOK & DUO MEMORY

**FREE**

CONNECTIX POWERBOOK UTILITIES WITH ANY TECHWORKS POWERRAM MEMORY PURCHASE. A \$129 VALUE.

## PERFORMANCE PRODUCTS

MAC MODEL	MEMORY MODULES (MEGABYTES)											ACCELERATORS		
	1	2	3	4	6	8	10	12	16	20	32	25MHZ	33MHZ	40MHZ
MACINTOSH PLUS	•													
MACINTOSH SE	•													
MACINTOSH SE/30	•													
MACINTOSH II	•													
MACINTOSH IIX	•													
MACINTOSH IICX	•													
MACINTOSH IICI	•	•												
MAC CLASSIC	•		•											
CLASSIC II, LC, LCII	•	•												
COLOR CLASSIC	•	•												
MAC LC III	•													
MACINTOSH IISI	•	•												
MACINTOSH IIFX	•													
LASERWRITER IINTX	•													
TI MICROLASER	•													
HP LASERJET	•	•												
QUADRA 700	•													
QUADRA 900, 950	•	•												
QUADRA 800	•													
CENTRIS 610,650	•													
POWERBOOK 100	•													
140/145/170	•													
160/180/165C	•													
DUO SERIES	•													

**FREE** CONNECTIX CPU WITH POWERRAM PURCHASE

### CARDS

\*165C DOES NOT COME IN 10MB SIZE

MACINTOSH LC	512K VRAM • LC FPU
MACINTOSH IISI	ADAPTER CARD • ADAPTER CARD WITH FPU
QUADRA 700/900/950	256K VRAM
MACINTOSH IICI/IISI	CACHE CARD

### TECHWORKS ACCELERATOR SPEEDS

	8 MHZ	16 MHZ	40 MHZ	25 MHZ 040
MAC SE/25 MHZ	WITHOUT ACCELERATOR	WITH ACCELERATOR		
MAC SE/40 MHZ	WITHOUT ACCELERATOR	WITH ACCELERATOR		
CLASSIC/25 MHZ	WITHOUT ACCELERATOR	WITH ACCELERATOR		
CLASSIC/40 MHZ	WITHOUT ACCELERATOR	WITH ACCELERATOR		
LC, LCII/25 MHZ	WITHOUT ACCELERATOR	WITH ACCELERATOR		
NUBUS/25 MHZ	WITHOUT ACCELERATOR	WITH ACCELERATOR		

## OUTRAGEOUS SUPPORT!

THE BEST IN THE BUSINESS! NO QUESTION ABOUT IT!  
LIFETIME WARRANTY  
30-DAY MONEY BACK GUARANTEE  
TOLL-FREE SUPPORT  
24-HOUR REPLACEMENT  
GET THE PICTURE?

CORPORATE PO'S ACCEPTED, ALL MAJOR CREDIT CARDS HONORED AND VOLUME DISCOUNTS ARE AVAILABLE. FAX ORDERS: 512-794-8520  
TECHWORKS; 4030 BRAKER LANE WEST, SUITE 350; AUSTIN, TX 78759  
BUSINESS LINE: 512-794-8533; TECHNICAL SUPPORT: 800-933-6113  
TECHWORKS IS A TRADEMARK BELONGING TO TECHNOLOGY WORKS, INC.  
ALL OTHER TRADEMARKS MENTIONED BELONG TO THEIR RESPECTIVE OWNERS.

CALL FOR  
**FREE**  
GUIDE

**800-765-9864**



# MarketCenter

THE SOURCE FOR DIRECT BUYERS OF MACINTOSH PRODUCTS, SERVICES AND INFORMATION

## Hardware/Boards

**SIMMS low as**  
**\$28.95**

**MacClassic**  
**\$29**

1MB/4MB FX SIMMS CALL  
2MB/4MB SIMMS CALL  
QUADRA/LC VRAM CALL  
Ili/Ili Cache Card \$128/\$138  
Power RAM 2/4/6 MB CALL  
Mac LC/Classic FPU \$64  
WE BUY 512K, 256K SIMMS

**1-800/541-7126**

Lifetime Warranty VS/MC no surcharge  
Corp. Gov. & Univ. PO's accepted FAX 512-219-1132  
Diamond Computer Resources Inc.

13377 Pond Springs Rd. STE. 105, Austin, TX. 78729 512-219-1222

## FPU/PMMU

Centris 610/650 FPU Upgrade ..... \$375

Mac LC, LCII, Classic II Math Card w/882

16MHz \$55 20MHz \$65 25MHz \$75 50MHz \$95

Mac IISI Dual Slot Card w/882 ..... \$119

68882 FPU Chip 16MHz \$49 20MHz \$59

25MHz \$69 33MHz \$119 40MHz \$129 50MHz \$149

68851 PMMU for Mac II (MODE32 free) ... \$79

SONNET TECHNOLOGIES, INC.

18004 Sky Park Circle 260 Irvine, CA 92714

714-261-2800 Fax: 714-261-2461

**1-800-945-3668**

Visa/MC; Gov't./Corp./Educ. P.O.; Dirs. Call

**Tell your  
source!**

I found it in  
**MacWEEK  
MarketCenter.**

THE  
*Chip*  
**MERCHANT**

How Can Anyone  
Afford Not To  
Compare Our  
PRICES?

### MACINTOSH PRODUCTS

1 x 8-80 Simm	\$29.50
2 x 8-70 Simm	\$58.00
4 x 8-70 Simm	\$120.00
8 x 8-70 Simm	\$275.00
16 x 8-70 Simm	\$499.00
8 x 8-70 Q700	\$285.00
16 x 8-70 Q700	\$525.00
4 x 8-80 w/PAL	\$125.00
1 x 8 FX	\$29.50
4 x 8 FX	\$120.00
16 x 8 FX	\$489.00

### PRINTER MEMORY

<b>HP LASERJET</b>	
2P/3's	2MB/4MB \$79/\$135
2/2D's	2MB/4MB \$79/\$135
<b>PANASONIC</b>	
4410, 4420	2MB/4MB \$86/\$139
<b>OKILASER</b>	
400	1MB/2MB \$52/\$83
<b>TI MICROLASER</b>	
1 MB	\$29.00

### POWERBOOKS MEMORY

PB 100	2MB .....\$70.00
	6MB .....\$239.00
PB 140, 145, 170	2MB .....\$70.00
	6MB .....\$199.00
PB 160, 180	4MB .....\$219.00
	6MB .....\$299.00
	8MB .....\$330.00
	10MB .....\$420.00
DUO 210, 230	4MB .....\$199.00
	8MB .....\$309.00

### MAC 32 BIT SIMMS

(LC III, CENTRIS, QUADRA 800)

1 x 32-80/60(4MB Simm)	\$112/\$140
2 x 32-80/60(8MB Simm)	\$229/\$265
4 x 32-80(16MB Simm)	\$499

### MAC FPU's

68882-25 (LC3)	\$59.00
68882-33 (Duo Dock)	\$69.00

### MAC VIDEO

256K-80 VRAM	\$22.00
256K-100 VRAM	\$17.00
512K-80 VRAM	\$40.00

**LIFETIME WARRANTY** on most products. Other chips available. Prices reflect 3% cash discount. U.S. Government and University PO's accepted. Fax # 619-268-0874. We buy 512K, 256K (2-chip), 1 MB, & 4MB SIMMS. Call Heidi ext. 7.

**ORDERS (800) 426-6375**

**INFORMATION (619) 268-4774**

9541 Ridgehaven Ct., San Diego, CA 92123

Prices subject to change without notice.

## INDEX

### 92 Hardware

Boards  
Communications/  
Networking  
Computer Systems  
Peripherals  
Used Equipment

### 106 Software

Bar Coding  
Business Management  
Communications/  
Networking  
Desktop Publishing  
Education  
Finance  
General  
Graphics  
Multimedia

### 106 Services

General  
Graphics  
Programming/Consulting  
Rental/Leasing  
Repair/Recovery Services  
Toner Recharging  
Training

### 107 Accessories

### 108 CD Rom

**INFO. 800-825-4ADS**

Ziff-Davis Publishing Company  
MacWeek MarketCenter, 3rd Floor  
One Park Avenue  
New York, NY 10016

Paul Stafford  
Vice President, Central Advertising

Paul A. Fusco  
Director of Sales

Southwest - AZ, CA (213, 310, 619,  
714, 805, 818, 909), CO, NM, UT  
**Juan Cail (212) 503-5145**

Account Representative  
**Chris Thomas (212) 503-5131**  
Account Manager

East Coast - CT, DC, DE, FL, GA, MA,  
MD, ME, NC, NH, NJ, NY, PA, RI, SC,  
VA, VT, WV

**Manny Fuentes (212) 503-5865**  
Account Representative  
**Tom Koletas (212) 503-5136**  
Account Manager

Northwest - AK, CA (209, 408, 415,  
510, 707, 916), HI, ID, MT, ND, NV,  
OR, WA, WY

**Tom Lee (212) 503-5327**  
Account Representative

Midwest - AL, AR, IA, IL, IN, KS, KY, LA,  
MI, MN, MO, MS, NE, OH, OK, SD,  
TN, TX, WI, and Foreign  
**Jo Zottarelli (212) 503-5122**  
Account Representative

## MEMORY UPGRADE DEPOT

- 1 Meg Upgrade for Mac SE, SE30, Plus, LC, II, Classic, Classic II, Ili, Ili, Ili, Ili, Quadra 700 and 900, LaserWriter II NTX, TI Microlaser & HP Laserjet.
- 2 Meg Upgrade for Mac Ili, Classic II, LC, IISI & HP Laserjet
- 4 Meg Upgrade for Mac SE30, II, Ili, Ili, Ili, Ili, Classic II, LC, Ili, Ili, HP Laserjet, LaserWriter II NTX, Quadra 700 & 900
- 6 Meg Upgrade for Powerbook 140 & 170
- 16 Meg Upgrade for Quadra 700 & 900
- We offer OEM pricing
- Government & University purchase orders welcome
- World wide orders accepted

**DELTA LU RESEARCH LABS**  
26802 Vista Terrace Dr. El Toro, CA 92630  
**1-(800) 6DELTA-LU (714) 588-6395**

## IF YOU HATE TO WAIT



ASK US  
ABOUT  
OUR  
NEW  
50 MHz  
VERSION

Accelerator-Video Board starts at \$549.  
Mac SE, Classic, Plus & 512KE Versions.

**Stop leaning on your elbows during screen refreshes!**

If you're looking for blow-your-hair-back-speed, the ImagePro™ **combination accelerator-video board** delivers a sizzling 400-2000% blast! Works with most large monitors, including Radius™. Proven reliability & compatibility! Motorola 68030 processor/optional math co-processor ▼ SIMM sockets for extra memory ▼ Speeds of 16, 25, 33, 40, 50 MHz ▼ 15" & 19" Monitors ▼ 30 day-money-back guarantee ▼ Ask your Dealer about FREE installation

Call 1-800-638-4784 for The **One Board Solution** **IMAGEPRO**

Novy Systems, Inc. • 107 E. Palm Way, Suite 14 • Edgewater, Florida 32132 • Fax 904-428-0765

Let **MacWEEK MarketCenter** take your product to the decision-making buyers inside business, government, and education.

Call your Account Representative at:  
212-503-5115 or 800-825-4237



"The MicroMac MultiSpeed 25MHz... deserves mention for offering solid performance at an exceptionally low price."  
MacUser, April 1993

## Upgrade Tip of the Week

### Hard Drives

"The most significant step you can take to upgrade your Macintosh is to improve the speed and capacity of whatever storage devices you have attached.

Parkinson's law applied to computer data storage would be, "Data expands to fill the space available for it." Anyone working with multimedia knows how quickly hard drive space is consumed.

For your working storage, you want the device for storing and using your Mac's data on a day-to-day basis to have speed and capacity.

For your long-term storage, you want a device to back up your data for safety and/or to preserve your data for archiving.

Now that the PowerBook is here to stay we are finding higher capacity hard drives. See our new 213MB Fuji hard drive under PowerBooks.

If you decide on a higher capacity hard drive, put your old hard drive in an external hard drive case for only \$99, power supply and SCSI cable is included.

This expert hard drive advice is liberally quoted from Bob Brant's book, "Upgrade Your Macintosh and Save a Bundle," published by Windcrest/McGraw-Hill and available for \$19.95 from MacUpgrade Specialists.

Upgrade your Mac and save with

# MacUpgrade Specialists

# 25MHz 68030 \$298!

Get the performance of a Mac IIci for your SE, Plus or Classic with the MicroMac MultiSpeed 25MHz 68030 accelerator

- ✓ Up to 800% performance increase
- ✓ Fully compatible with System 6 and System 7
- ✓ Four SIMM slots for ultra-fast 32-bit memory
- ✓ Up to 16MB of physical or virtual memory with optional Connectix Virtual 3.0 software
- ✓ 68882 Math co-processor socket
- ✓ Installs in PLUS with optional adapter board

25MHz 68030 MultiSpeed .....	\$298
32MHz 68030 MultiSpeed .....	\$398
Plus/Classic Adapter Card .....	\$40
1MB SIMMs 60ns RAM .....	\$37
1MB SIMMs 45ns RAM .....	\$39
4MB SIMMs 60ns RAM .....	\$139
Compact Virtual .....	\$80
25MHz Math Co-Processor .....	\$75
32MHz Math Co-Processor .....	\$125

Now  
available  
for the  
Classic!

The MicroMac MultiSpeed accelerator simply connects to the Classic or Plus' processor with an adapter card or plugs into the SE's PDS slot and increases performance up to 800%.

## Video Products


14" Relisys color monitor .28mm dot pitch, Hitachi tube ....\$329
Greyscale 15" FPD Displays 16-level greyscale on your IIsi, IICI and LCIII.....\$379
Monochrome FPD w/video card For PLUS, SE, LC, SE/30, II.....\$449
Mac2VGA cable Connects cost-effective VGA monitor to Performa 400/600, LC series, IIvi/vx, PowerBook160/180 and Quadras.....\$20

## Hard Drives

NEC 3856, 105MB, 19ms.....	\$229
Quantum, 3.5" LPS, 10ms, 170MB .....	\$299
Quantum, 3.5" LPS, 10ms, 240MB .....	\$429
Quantum, 3.5" LPS, 10ms, 525MB .....	\$899
Quantum, 3.5" half height ProDrive, 10ms, 1.2GB .....	\$1,549
Fuji, 3.5" half height, 9ms, 525MB .....	\$899
Fuji, 5.25" full height, 14.5ms, 1.2GB .....	\$1,349

## Acceleration CPU/FPU Upgrades

Applied Engineering, TransWarp 4300, 40MHz/030 for Mac LC, LCII & Performa 400 .....	\$499
LogiCache 50MHz '030 For Mac SE/30, II, IIsi, IICI, IIvx, IIvi, Performa 600 .....	\$679
with FPU (68882) .....	\$779
Adapter for Mac SE/30, II, IIsi, IICI .....	\$69
Extreme Systems Impact 32MHz '030 Speeds up your LC, LCII, Performa 400 by 200% to 300% .....	\$589
with FPU for extremely fast math calculations .....	\$689
LC to LCII Upgrade Add 68030 and PMMU to get Virtual memory on your LC .....	\$149
with 68882 math co-processor .....	\$229
PMMU for Mac II (To get Virtual memory for your Mac II) .....	\$79
FPU (68882) for Mac II (overall speed improvement) .....	\$69
FPU for LC and LCII, Classic II Plugs into PDS slot (16MHz/25MHz) .....	\$64/\$89
68030 with PMMU for Mobius Accelerator .....	\$125
FPU for Performa 600 .....	\$125

## PowerBook

Fax/Modem .....	\$89
2400 baud, 9600 baud fax send w/manual & software, Apple pulls, almost new Adapter Kit f/Hard Drive.....	\$29
Adapt your 2.5" PowerBook hard drive to standard 3.5" SCSI connection for use in any Mac!	
ToolKit .....	\$10
T8 & T10 Torx wrenches	
Quantum Go Drives	
80MB, 17ms .....	\$349
120MB, 17ms .....	\$479
Fuji 213MB, 12ms .....	\$699
Trade-in your low capacity drive	

## New Mac Memory

	LCIII Centris 70ns	Quadra 800 60ns
2MB	\$90	\$100
4MB	\$145	\$155
8MB	\$279	\$299
16MB	\$619	\$749
32MB	\$1,499	Call!

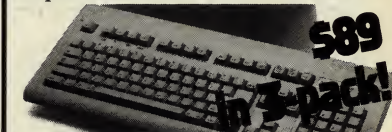
## Upgrade Your PowerBook Memory

	2MB	4MB	6MB	8MB	10MB
PowerBook 100	\$79	\$189	\$259		
PowerBook 140/145/170	\$79	\$179	\$239		
PowerBook 160/180	\$99	\$212	\$279	\$359	\$439
PowerBook DUO 210/230		\$209		\$389	

## HardWare

Applied Engineering HD PLUS High density floppy drive (external) for Mac Plus or SE .....	\$299
External Hard Disk or Syquest Enclosure .....	\$99
including SCSI cable, terminator and formatting software	
SCSI Terminator .....	\$12
SCSI Cable .....	\$12
PhoneNet Connector .....	\$15
PLUS power supply (w/trade-in)...	\$85

ADB Extended Keyboard 105 keys .....	\$97
3-pack .....	\$267



LC Twin Slot Double the LC's expansion slot and "beef up" the power supply ...	\$249
--	-------

## MacUpgrade Specialists

27111 Aliso Creek Rd, Suite 145  
Aliso Viejo, CA 92656-3366  
Tel: 714.362.5429 • Fax: 714.362.5428

International Orders and  
Corporate POs Welcome!

# (800) 266-3622





# MEMORY PLUS

## Macintosh Enhancement Products

Price, Performance, Satisfaction Guaranteed

### SIMM's

1MX8-100ns.....	\$Call
1MX8-80ns.....	\$Call
1MX8fx-80ns.....	\$Call
2MX8-80ns.....	\$Call
4MX8-80ns.....	\$Call
4MX8fx-80ns.....	\$Call
4MX8-80ns w/Pal.	\$Call
8MX8-80ns.....	\$Call
16MX8-80ns HP...	\$Call
16MX8-80ns LP...	\$Call
16MX8fx-80ns.....	\$Call
Classic 1M/3M....	\$Call
New 72 Pin:	
4mb.....	\$Call
8mb.....	\$Call
16mb.....	\$Call

### UPGRADES

Ilisi 2 Slot Adaptor.....	\$49
Ilisi 64K Cache Card.....	\$139
LC/LCII 16Mhz FPU.....	\$59
LC/LCII 20Mhz FPU.....	\$69
Classic II 16Mhz FPU...	\$59
Classic II 20Mhz FPU...	\$69
Ilisi 64K Cache Card.....	\$125
Sonnet Twin Slot LC....	\$309

#### FPU 's (Chip only)

68882-16Mhz.....	\$55
68882-20Mhz.....	\$55
68882-25Mhz.....	\$89
68882-33Mhz.....	\$125
68882-50Mhz.....	\$159

PMMU 68851RC-16Mhz \$79

### ACCELERATORS

#### NOVY QUIK 30

Plus 25Mhz, w/FPU.....	\$475
SE 25Mhz, w/FPU.....	\$435
Classic 25Mhz, w/FPU...	\$479

#### NOVY IMAGEPRO

Plus 25Mhz, w/FPU.....	\$825
SE 25Mhz, w/FPU.....	\$725

#### APPLIED ENGINEERING

TransWarp SE, 25Mhz, FPU	\$527
TransWarp LC, 25Mhz, FPU	\$440
TransWarp 040, 25Mhz, FPU	\$1895
Transwarp Classic 25, FPU	\$440

#### NEWER TECHNOLOGY

900 Overdrive.....	\$139
700/900 Vari Overdrive...	\$275
FX Overdrive II.....	\$275

#### TECHNOLOGY WORKS

Classic 25Mhz, w/FPU...	\$439
Classic 40Mhz, w/FPU...	\$679
SE 25Mhz, w/FPU.....	\$439
SE 40Mhz, w/FPU.....	\$679
LC 040, 25Mhz.....	\$1099
NuBus 040, 25mhz.....	\$1450
NuBus 040, 33Mhz.....	\$1750

#### BRAINSTORM

Plus ,16Mhz.....	\$199
------------------	-------

### VIDEO RAM

512KModule.....	\$49
256K 80ns Module.....	\$27
Raster Ops.....	\$Call
Radius.....	\$Call
Xante.....	\$Call

### NEW PRODUCTS

#### Memory In Stock Now!!!

For:

Macintosh Centris, LCIII,  
Quadra 800, and  
LaserWriter PRO Series


### SYQUEST

External 44MB.....	\$409
External 88MB.....	\$499
Dual Removable 44/44...	\$779
Dual Removable 88/44...	\$879
Dual Removable 88/88...	\$949


#### CARTRIDGES

44MB.....	\$64
88MB.....	\$98

Drive packages include: Software, Cable, & Cartridges



## PowerBook Alley



#### PSEUDO STATIC RAM

MODEL	100	140/170	160/180
2M	\$80	\$80	\$95
4M	\$175	\$152	\$189
6M	\$239	\$215	\$279
8M	—	—	\$330
10M	—	—	\$395

#### DUO 210/230

4M	\$210	8M	\$359
----	-------	----	-------

Newer Technology Upgradable DUO Modules

4M Base....\$210	4M Upgrade....\$210	8M Upgrade....\$389
------------------	---------------------	---------------------

MacSac - Slim Carrying Case.....	\$29
MacSac - Deluxe Carrying Case.....	\$59

#### FULL CYCLE BATTERY CHARGERS

PowerBook 100.....	\$115
PowerBook 140/145/160/170/180.....	\$80

Automobile Power Adaptor.....	\$75
Battery for 140/145/160/170/180 .....	\$60
Auxiliary Power Pack (4 X Capacity)...	\$159

ALL PB MEMORY SHIPS WITH TOOLS & INSTRUCTIONS

#### QUANTUM HARD DRIVES

GO/120MB.....	\$479
---------------	-------

#### PSI Internal Fax/Modems

PowerModem I.....	\$129
PowerModem II.....	\$229
PowerModem III.....	\$329
PowerModem IV.....	\$379

#### CONNECTIX "CPU" Utilities

CABLES	\$40
HDI30 to 50 Pin SCSI.....	\$49
HDI30 to 25 Pin System.....	\$49

### MacSac Carrying Cases

LC, Ilisi CPU	
w/ Extended Keyboard...	\$63
Classic, SE, Plus	
w/ Extended Keyboard...	\$66
w/Standard Keyboard....	\$64
RGB Monitor12", 13".....	\$60
StyleWriter.....	\$45

### SPECIALS

#### Introductory Offer

#### LogiCache

68030, 50Mhz Accelerator  
Ilisi, Ilisi\*, SE30\*

\*Adaptor \$59

**\$649**

### LASER RAM

TI Micro 1mb.....	\$39
TI Turbo 4mb.....	\$263
HP LASERJET IV 4mb.....	\$159
NEC Modelsl/90/290 2mb....	\$143
NEC Model 95 2mb.....	\$125
LaserWriter lIntr 2mb.....	\$65
LaserWriter LS 512kb.....	\$25
LaserWriter Pro 600/630.....	\$Call

CALL FOR OTHER PRINTERS AND SIZES

### Terms & Conditions

MC/VISA/Discover/AMEX  
NO CREDIT CARD SURCHARGE  
PRICES SUBJECT TO CHANGE  
COD PRICES LISTED  
APPROVED GOVERNMENT,  
UNIVERSITY, CORPORATE P.O.'S  
ACCEPTED  
PRODUCT NAMES IN THIS  
ADVERTISEMENT ARE <sup>TM</sup>OR <sup>®</sup>  
OF THEIR RESPECTIVE  
COMPANIES

CALL FOR OTHER CONFIGURATIONS



## MEMORY

Call for memory for the  
LC III, Centris 650, 610,  
and the new Quadra 800.

## SIMMs

1 Megabyte	CALL FOR
2 Megabyte	CURRENT
4 Megabyte	PRICING
8 Megabyte	ON ALL
16 Megabyte	SPEEDS

## Video RAM

4 Bit to 8 Bit Upgrade (Mac II/IIx cards)	24.00
256K Q700/900 VRAM	29.00
256K Q950 VRAM	32.00
512K Mac LC VRAM	59.00
Mac IIvx	CALL

## PowerBook Memory

	PowerBook 100	140/170	160/180	Duo 210/230
2 MB Module	89.00	89.00	CALL	—
4 MB Module	189.00	159.00	CALL	CALL
6 MB Module	289.00	249.00	CALL	—
8 MB Module	—	—	CALL	CALL
10 MB Module	—	—	CALL	—

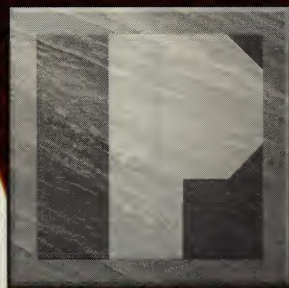
## Quadra Memory

256K VRAM Quadra 700/900	\$29.00
256K VRAM Quadra 950	32.00
16 MB SIMMs Quadra 700	CALL
16 MB SIMMs Quadra 900/950	CALL

## Miscellaneous

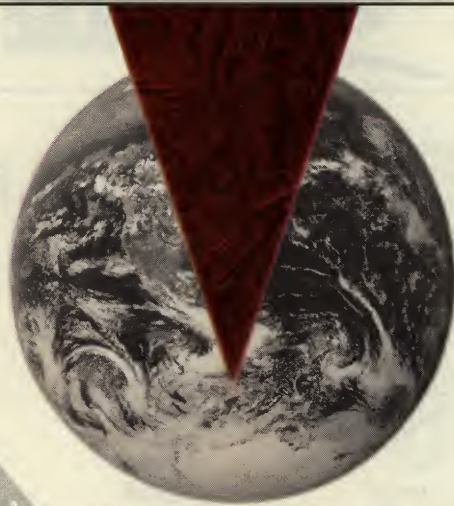
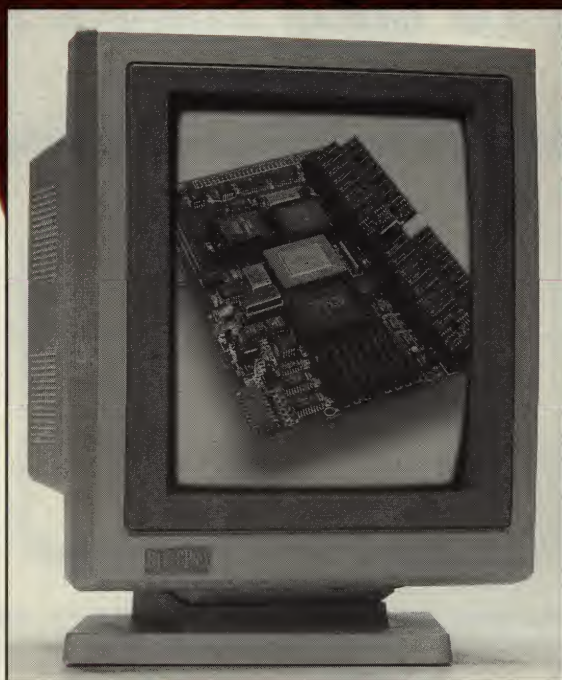
T.I. MicroLaser 1 MB	\$ 49.00
Virtual 3.0	129.00
with accelerator	99.00
Mac Classic 1 MB Bd	55.00
68851 16 Mhz PMMU	79.00
Mac Portable RAM	CALL
NeXT Memory	CALL

PRICES SUBJECT TO CHANGE AND AVAILABILITY.



## PERIPHERAL

**68030 ACCELERATOR**  
AND 15" MONITOR COMBO **\$849.00**  
AS LOW AS



**800/256-6581**

ORDER BY 6:30 PM CST  
FOR SAME DAY SHIPPING\*

\*some restrictions apply

OVERNIGHT DELIVERY from \$8.00

68030 SUPER-FAST  
Accelerators

"Quik30" for Mac SE, Plus, 512Ke,  
and Classic

- Speeds of up to 33MHz
  - System 7/Virtual compatible
  - Add up to 16 Megabytes of RAM
  - Includes 68882 Math CoProcessor
- \$529.00** for 25MHz version

"ImagePro" SE, Classic, Plus, 512Ke.  
•16, 25, 33, 40, 50Mhz speeds available

**\$1095.00**  
with 19"  
monitor

- Works with your monitor or ours
- System 7/Virtual compatible
- Add up to 16 Megabytes of RAM
- Includes 68882 Math CoProcessor
- Optional Display- 15, 19, or 24 inch.

Ilsi Dual Slot Card  
with 68882 FPU **\$119**

## 68882 FPU Boards

20 Mhz for Macintosh LC	\$ 69.00
20 Mhz w/2 slots for Mac Ilsi	119.00
20 Mhz for Mac Classic II	69.00

## Cache Cards, Etc.

Ilsi 64K Cache Card	\$ 139.00
Ilci 64K Cache Card	129.00
Ilsi 2-slot Card and 68882	119.00

## FPUs (chip only)

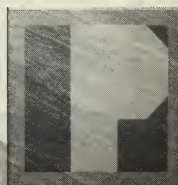
Ideal for upgrading your  
Daystar Accelerator

68882 16 Mhz	\$ 55.00
68882 20 Mhz	59.00
68882 25 Mhz	109.00
68882 33 Mhz	135.00
68882 50 Mhz	175.00
68881 16 Mhz	45.00

**68882 33MHz**  
CoProcessor for  
MAC IIvx AND  
Duo Docks  
**\$139.00**

## PERIPHERAL OUTLET

327 East 14th, PO Box 2329 • Ada, Oklahoma 74820  
International Calls ☎ 405/332-6581 FAX ☎ 405/436-2245





# MEMORY DIRECT!

"Don't pay retail...buy direct"

## SYQUEST CARTRIDGES

**44 MEG \$64**

**88 MEG \$105**

### MACINTOSH

1x8 - 100NS	call
1x8 - 80NS	call
1x8 - 70NS	call
2x8 - 80NS	call
2x8 - 70NS	call
4x8 - 80NS	call
4x8 - 70NS	call
4x8 - 80 FX	call
4x8 - 80 II/Ix	call
8x8 - 80NS	call

### QUADRA

★ 4 Meg Sims	call
★ 8 Meg Sims	call
★ 16 Meg Sims	call
★ 512K VRam Kit	call

### POWERBOOK / DUO

**new** Memory upgrades for new  
POWERBOOK 160 / 180  
& DUO 210 / 230  
**4 • 6 • 8 • 10 • MEGS-CALL**

### LASERPRINTER MEMORY

APPLE IINTX	
4 Meg Kit !	call
HP Laser printers -All	call
QMS PS-410, 815, 825	
2 meg	call
4 meg	call
6 meg	call
NEC Silentwriter 95	
2 meg	call
TI Microlasers 1 Meg	call

★ We Stock for most lasers ★

### MAXIMUM MEMORY SPECIAL

**! 16 MEG SIMMS !**  
**CALL**

**MEMORY!**

**HARD DRIVES!**

### CONNER

	Internal	External
• 42 Meg	\$209	\$279
• 85 Meg	\$279	\$345
• 120 Meg	\$369	\$429
• 170 Meg	\$409	\$474
• 212 Meg	\$619	\$699

### FUJITSU

• Fujitsu 425 Meg	\$975	\$1039
• Fujitsu 520 Meg	\$1075	\$1175
• Fujitsu 1.2 Gig	\$1700	\$1775
• Fujitsu 2.06 Gig	\$2799	\$2879

• Syquest Removable W/Ctrge 44 Meg \$414 88 Meg \$559

## DAYSTAR

D I G I T A L

		w/ math chip
Power Cache 33	\$545	\$660
Power Cache 40	\$745	\$909
Power Cache 50	\$1069	\$1279
Fast Cache si	\$295	\$362
Fast Cache ci	\$259	—

## NewLife™ For Old Macs

		W/ Chip
NewLife 1	128K, 512K, 512Ke	\$225
NewLife 16 Mhz Accelerator		\$479 \$569
NewLife 25 Mhz Accelerator Mac plus		\$649 \$799
NewLife 16 Mhz Accelerator SE		\$399 \$469
NewLife 16 Mhz Accelerator Classic		\$509 \$569

**ACCELERATORS!**

### NETWORK

## ASANTE

### ETHERNET ADAPTERS

MAC CON+	\$209
MAC+ II,E & ET 64K	\$169
MAC II, Si - 64K	\$209
MAC +LC II	\$209
MAC 3 SE	\$209
EN/SC	\$319

**Friendly net adapters**  
all types

**\$99**

10 T-12 PORT HUB	\$499
10 T- 8 PORT HUB	\$249

## SUPERMAC

### VIDEO CARDS

Spectrum/8 (IIsi)	\$499	
Spectrum/8•24	\$575	PDQ \$849
Spectrum/24	\$999	Series III \$825
Spectrum/24 PDQ plus	\$1644	
Monochrome card	\$349	

### DISPLAYS

	SUPERMATCH
17" Multi Mode Color	\$1079
17" SuperMatch Color	\$1075
20" Supermatch	\$1489
20" D. Trin.	\$2449
20" Trin.	\$2474
21" 2 page	\$2725

### PLATINUM

20"	\$899
21" 2 page	\$999

## RasterOps

### VIDEO CARDS

RasterOps 24XLi	\$2059
RasterOps 24 paintboard	\$1649
RasterOps paintboard Li	\$849
RasterOps 24 sx	\$675
RasterOps colorboard 264 se 30	\$2059
RasterOps 8XLi	\$999
RasterOps 8XL	\$499

### MULTIMEDIA PRODUCTS

RasterOps 24xXLTV	\$2519
Pro Video PAL	\$1609
RasterOps Video Expander	\$440
RasterOps TV Tuner	\$315
ImagePak Still Compression	\$315

### DISPLAYS

21" Color	\$2999
20" Color Multimode	\$2075
20" Color Multiscan Trinitron	\$2925
16" Color	\$1249

**VIDEO!**

**WE WILL NOT BE UNDERSOLD!**

# 800-486-2447

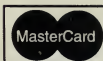
Fax (714) 847-5043

7911 Professional Circle • Huntington Beach, CA 92648

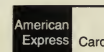
Installation instructions & tools available for most products.  
Prices subject to change.

Lifetime Warranty!  
Highest Quality  
Same Day Shipping

7AM to 7PM  
MON.-FRI.  
9AM to 3PM  
SAT.



Corporate PO's  
Government PO's  
Educational PO's



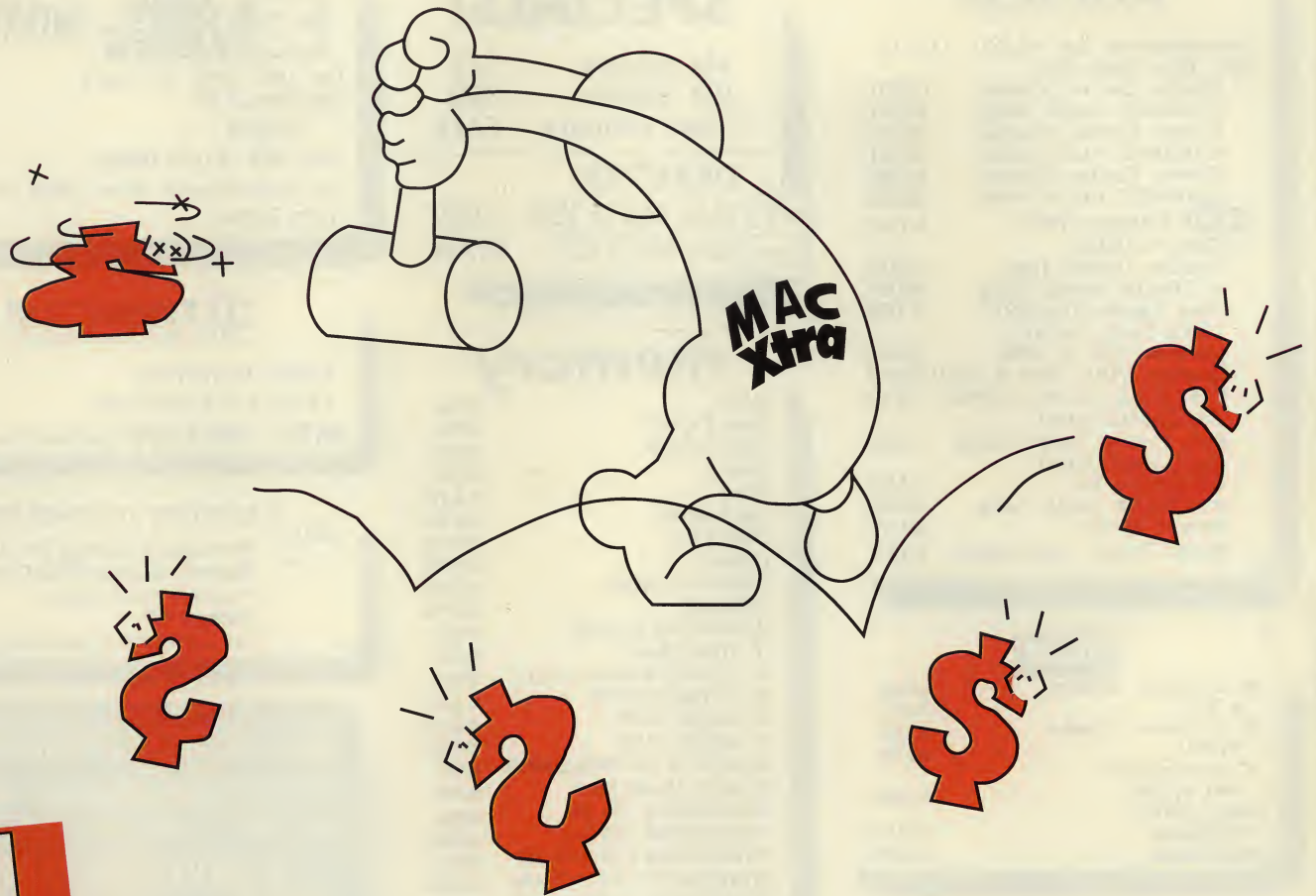


# MAC Xtra is STAMPING OUT HIGH COSTS!

(Formerly MAC EXPRESS)

## MEMORY UPGRADES

1x8x80 .....	30
1x8x70 .....	32
1x8x100 .....	28.50
2x8x80 .....	59.50
2x8x70 .....	61.50
4x8x80 .....	125
4x8x70 .....	127
4x8x80 II/II .....	128
4x8x70 II/IIx .....	130
8x8x80 .....	279
16x8x80 (High profile)...	515
16x8x70 (Low profile) ....	555
1x8x80fx .....	33
1x8x70fx .....	35
4x8x80fx .....	127
4x8x70fx .....	129
8x8x80fx .....	269
16x8x80fx .....	539



### Classic Expansion Cards

1MB .....	47
3MB .....	112
512K VRAM .....	49
256K VRAM .....	27
1x9x70 .....	39.75
4x9x70 .....	135
TI Microlaser Upgrade .....	40
Tool Kit (Simms Inst.Kit) ....	7
Tool Kit (PowerBook) ....	6.50

## POWERBOOK MEMORY

PB100/140/170-2MB .....	80
PB100/4MB .....	189
PB100-6MB .....	241
PB140/170-4MB .....	169
PB140/170-6MB .....	210
PB160/180-4MB .....	204
PB160/180-6MB .....	290
PB160/180-8MB .....	369
PB160/180-10MB .....	439
PBDUO 210/230-4MB ....	215
PBDUO210/230-8MB .....	399

## SYQUEST CARTRIDGES

SYQUEST 44MB Cartridge 63
SYQUEST 88MB Cartridge 99

## SHIPPING

Overnight Delivery: .....	\$7
UPS: .....	\$6

### International Orders

Phone: .....	(206) 455-0786
Fax: .....	(206) 455-3448

**24 Hours a Day**

# CALL: 1-800-553-4230

We accept MasterCard, VISA & Discover

Prices subject to change • Returns subject to approval and restocking fee

To enhance our identity and avoid confusion, MacEXPRESS is now MacXtra. We will honor all warranties given under our previous name.

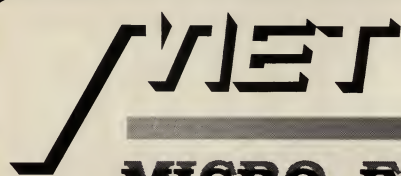
1075 Bellevue Way N.E., Suite 114 Bellevue, WA 98004  
Phone: (206) 455-0786 Fax: (206) 455-3448

**MAC Xtra**





## Boards



MANUFACTURING SINCE 1987!

## MICRO ELECTRONIC TECHNOLOGIES, INC.

DAYSTAR  
DIGITAL

Accelerators for SE/30, LC, II, IIX, IICX, IISI, IICI.	
Power Cache 33mhz	\$375.
w/68882 math chip	\$459.
Power Cache 40mhz	\$539.
w/68882 math chip	\$629.
Power Cache 50mhz	\$699.
w/68882 math chip	\$829.
<b>NEW!</b> Charger/DSP	\$799.
CACHE CARDS	
Combo Cache IISI	\$209.
w/20mhz math chip	\$289.
Fast Cache IICI-32k	\$159.
128k Fast Cache	
Quadra 700 & 900	\$249.
Quadra 700, 900 & 950	\$379.
Fast Cache Turbo-128K	\$249.
-for 25MHZ/040	
Fast Cache Turbo-128K	\$339.
-for 33MHZ/040	
Equalizer LC	\$169.
w/16mhz math chip	\$249.
Power Math	\$109.
RAM Power Card-Omb	\$419.

## TECHWORKS

SE & Classic 25mhz	\$369.
w/FPU	\$469.
SE & Classic 40mhz	\$549.
w/FPU	\$639.
LC Accelerators	
040 w/FPU	\$1089.
NuBus Cards	
040/25mhz	\$1489.
040/33mhz	\$1789.

## ACCELERATORS FROM LOGICA

LogiCache 50MHZ Accelerator	\$649.
w/ FPU	\$749.
MacIISI accelerator adapter	\$65.

## SPECIALS!

1M SIMMs	\$31.
2M SIMMs	\$59.
Other Memory	CALL

## DAYSTAR

<b>NEW!</b> Turbo 040/25 MHZ	\$1079.
<b>NEW!</b> Turbo 040/33 MHZ	\$1329.

## memory

1Mx8	\$32.
1Mx8 FX/NTX	\$35.
1Mx8 2-CHIP	\$29.
2Mx8	\$59.
4Mx8	\$112.
4Mx8 (II,IIX)	\$129.
4Mx8 FX	\$115.
16Mx8	\$479.
16Mx8 (700/950)	\$539.
16Mx8FX	\$499.
MACINTOSH CLASSIC	\$39.
LC VIDEO RAM	\$49.
LC CO-PROCESSOR (16MHz)	\$55.
SI CO-PROCESSOR	\$119.
SI CACHE CARD	\$135.
CI CACHE CARD	\$125.
CLASSIC II CO-PROCESSOR	\$55.
QUADRA VRAM 80ns	\$29.
POWERBOOK 100 2M	\$89.
POWERBOOK 100 6M	\$289.
POWERBOOK 140/170 2M	\$89.
POWERBOOK 140/170 4M	\$159.
POWERBOOK 140/170 6M	\$249.
POWERBOOK 160/180 6M	CALL
POWERBOOK 160/180 10M	CALL
DUO 210/230 8M	CALL
HP LASERJET 2P/3 4MB	\$135.



## SIGMA DESIGNS MONITORS

for 160, 180, & Duo's	
PageView GS 15"	\$499
Anti-glare	\$539
Color Max 15 Color Display	\$789
for Powerbooks, Plus, SE's & Classic's	
Power Portrait	\$639

TWINCOM  
internal fax/modems

24/96 PowerTwin	\$119
14.4/14.4 PowerTwin	\$299
MET 9624PF (pocket fax)	\$99



## BATTERY TECHNOLOGY, INC.

PowerBook Battery (ex. 100)	\$59
Battery Charger (Full Cycle)	\$89
includes auto adaptor	
Battery Kit	\$139
includes battery and charger	

## MICRO ELECTRONIC TECHNOLOGIES, INC.

35 South Street, Hopkinton, MA 01748  
PH: (508) 435-9057 FAX: (508) 435-6481

1-800-766-7466

Tech Support: 1-800-967-7636

HOURS: 8:30AM - 7PM EST (M-F)

Corp. and Gov't PO's Accepted  
AMEX/VISA/MC Accepted



The Perfect  
Pitch To  
95,000  
MVB's  
In  
March

Call Your  
MacWEEK  
Representative  
Today!

1-800-825-4237

MacWEEK  
MarketCenter

How many monitors  
should a PowerBook have?  
Let me count the ways.



Put PowerBook color where you want it. Output the 140, 145 & 170 PowerBooks to more monitors with more display choices than even their higher priced new siblings. Provides 6 megs of RAM on board for total of 8 megs system RAM.

**BookRAM.** Pick from 2, 4 or 6 meg RAM cards for PowerBooks. One card fits all. Up to 10 Megs for the PowerBook 160 and 180.

Call now to know what's good for you!

**Computer Care**

Dealer Inquiries Welcome. Visa, MC, AMEX, Discover Accepted

Ford Centre, Suite 1180  
420 North Fifth St.  
Minneapolis, MN 55401  
(612) 371-0061  
(800) 950-CARE (2273)  
Fax: (612) 371-9342  
AppleLink ComCare

## Communications/Networking

## PowerBook Fax and Data Modem



## Simple

- Simple to install
- Simple to learn
- Simple to use

## Powerful

- 14,400 bps fax & data (V.32bis)
- 57,600 bps throughput (V.42bis)
- Does not use CPU resources

- 24-hour BBS Customer Support
- 5-year Warranty
- 30-day Satisfaction Guarantee

Dealers call for dealer prices

PowerAccess 144/144 \$289.00 +  
PowerAccess 96/96 \$274.00

Get up to  
\$30.00 back  
for dealer  
Installation



Dtronix  
3140 De La Cruz Blvd., Santa Clara, CA 95054  
Intl. (408) 982-9667 FAX: (408) 982-9640

OEM, Qualified as D.S.B.

Corp., Govt. and University P.O.s accepted with approved credit.

800-995-1711

Calling about an ad? Say you saw it in MacWEEK.



## Computer Systems

### BIG MAC

Computers, Inc.  
Division of WCN

#### POWER BOOKS

165C 4/80	2950
165C 4/120	3295
165C 4/232	3550
160 4/40	2195
160 4/80	2360
160 4/120	2560
180 4/80	3595
180 4/120	3850
180 14/230	4530
DUO 2304/80	2295
DUO 230 4/120m	2979
DUO Dock	960
PSI Fax/Modem 14.4 420	

#### QUADRA'S

800 8/0	3440
800 8/230	3690
800 8/525	4195
800 64/1.2	72.95
800 136/2.4	13240
950 8/0	4450
950 8/200	4795
950 16/525	5460
950 64/1.2	7495
700 All Config.	CALL

#### CENTRIS

650 8/80	2525
650 8/230	3030
650 8/230-CD	3450
650 16/525	3795
610 4/80	1650
610 8/230	2225
610 8/230-CD	2595

In Business Since 1987. All products 1 Yr. Warranty

#### EXCHANGE YOUR MAC

700 to 800	1995
CI to 700	1199
900 to 800	1695
P.B. 100 to 140	950
P.B. 140 to 160	995
P.B. 170 to 180	1895

#### MAC IIVX

4/80	1595
5/80-CD	1995
Si Ci LC III	
Si 3/40	950
Si 5/230	2495
LC III 4/200	1425
Classic Clr.4/80	1350

40MB Upgrade for Powerbook 100 \$75.  
80MB Upgrade for all Powerbooks \$220.

#### APPLEMONITOR

13"/14" Color	425/489
16" Color	1230

#### APPLE KYBRD.

Adj. Keyboard	209
Ext. Keyboard	145
Gen. Extended	79

#### APPLEPRINTER

Pro 630	2350
Pro 600	1975
IIF/IIG	2120/2590
Select 300	785
Select 310	1025
Style Writer II	349

#### PRINTERS

HP Desk Writer	395
HP DW550C	729
HP Laser 4M	1895
NewGen	CALL

#### SCANNERS

MicroTeck IIXE	1130
UMax 630	1070
HP ScanJet IIC	1250

#### LOGIC BOARDS

IIF/IIG	895/1195
IIFX	1695
700/900	1595/1795
950/800	2595
NT/NTX	295/595

#### DEMO MAC'S

700 4/0	CALL
900 4/0	2950
IIFX 4/80	2395
IICI 5/80	1850
ICIX 4/80	1095
LCII 4/40	795
SE30 2/40	1195
P.B. 140 4/40	1495
P.B. 170 4/40	1995
Portable 2.40	695

Call for APPLE 3rd party products • International Orders.  
Visa, MC & AmEx Welcome • Next Day Shipping for U.S.A. & International  
Prices are subject to change w/o notice • All prices shown are C.O.D. Prices

## MAC PROFESSIONAL

We sell Apple original serial numbers only! One Year Warranty. We only sell new products.  
19801 Ventura Blvd., Woodland Hills, CA 91364 No tax outside CA. Dealers & international orders welcome.

(818) 719-0007

We guarantee best pricing.

FAX (818) 719-9115

POWERBOOKS	QUADRA	MAC IIVX	NEC/SONY
180 4/80 ..... \$3777	800 8/230 ..... \$3147	4/80 ..... \$1747	3FGX/4FG \$647/747
180 4/120 ..... \$3997	800 8/520 ..... \$4247	8/240 ..... \$2077	5FG/6FG \$1337/2377
165C 4/80 ..... Call	800 8/1000 ..... \$4647	5/80-CD ..... Call	1320 ..... \$ 377
160 4/80 ..... \$2377	950 8/0 ..... \$4477	Color Classic ..... \$1377	1430/1604 ..... \$597/997
160 4/120 ..... \$2577	950 16/520 ..... \$5577	<b>PRINTERS</b>	
145 4/40 ..... \$1977	700 8/240 ..... \$2727	Stylewrite-II ..... \$ 337	E Mach T16 11 \$1297
145 4/80 ..... \$2247	<b>CENTRIS</b>		<b>APPLE</b>
4 MB Module .. \$ 197	610 4/80 ..... \$1677	Laser 600 ..... \$1947	14"/16" \$497/1197
10 MB Module ..... Call	610 8/230 ..... \$1977	Select 300/310 ..... \$2347	<b>GENERATION SYSTEMS</b>
Duo 210 4/80 ..... \$1777	650 8/80 ..... \$2827	Color Printer ..... Call	Full Page ..... \$ 599
Duo 230 4/80 ..... \$2477	650 8/230 ..... \$3147	HP D.W. 550 C ..... \$ 697	19" Trini ..... Call
Duo 230 4/120 ..... \$2727	LC II/LC III ..... Call	HP 4M ..... \$1897	<b>SCANNERS</b>
Duo Dock ..... \$ 977	IISI/IICI ..... Call	Ext Key BD ..... \$ 99	UMAX 840 ..... \$1297
			1200 Color ..... \$2847

**FREE DUST COVER WITH EVERY PURCHASE**

Close-Out  
CPU'S

*Mac*  
S.A.L.E  
INTERNATIONAL

Reduced  
Lasers

**LASER  
BLOW-OUT**

**QMS PS-410 - \$799.00**

Like NEW, 300 dpi PostScript, Mac + IBM autoswitch, Factory Sealed/wrnty, (List - \$1,995.00)

- FINAL PRICE REDUCTIONS! USED EQUIPMENT -

**QMS ColorScript 100 - \$1,599.00**

(List \$9,995.00) 300 dpi Color Laser/PostScript

**Classic II 4/40 - \$799.00**

**Mac SE 1/20 - \$499.00**

**Stylewriter - \$199.00**

Apple Personal Laserwriter LS - \$599.00

Apple Laserwriter IINT - \$995.00

Apple Laserwriter IINTX - \$1,195.00

Radius Pivot Color/Mono - \$599.00/375.00

Radius TPD Mono - \$599.00

Mac II 2/0 - \$699.00

Mac IICx 2/0 - \$949.00

*Call  
For Other  
Specials*

#### New Equipment Specials:

Classic 2/40 - \$775.00	Apple IICI Cache Cards - \$35.00
Classic II 4/40 - \$949.00	Radius Pivot Color/Mono - \$799.00/475.00
Stylewriter - \$249.00	PowerBook 170 4/40 w/modem - \$2599.00

#### Mac Parts: (Partial Listing, Call with your needs!)

IICI Logic Board - \$1050.00	LW Iint Logic Board - \$179.00
IICx Logic Board - \$650.00	LW Iintx Logic Board - \$479.00
Mac II Logic Board - \$425.00	Power Supplies, Accessories, Etc.

**\* WE WANT TO BUY YOUR NEW/USED MAC EQUIPMENT \***

New and Used Mac's

Bought and Sold

PRICES REPRESENT CASH DISCOUNTS!

**1-800-729-7031**

Entire Mac Line

Latest Models In Stock

Prices represent "2% Cash Discount!" - off Full Price.

LIMITED QUANTITIES

Returns at discretion of Mgmt./15% Restocking fee.

## "MacAttack"

We attack high Mac prices

CPU's	Systems	Peripherals
LC III 4/80	Classic II 4/80	Apple CD 150
LC III 4/160	LC III 4/80	Apple CD 300
IIVx 4/80	IIVx 4/80	Color One Scanner
Centris 610 4/80	Centris 610 4/80	Laserwriter Select 300
Centris 650 4/80	Quadra 800 8/230	Laserwriter NTR
Quadra 800 8/230	Powerbook 165c 4/80	Laserwriter Pro 600
Quadra 950 8/0	Duo 210 4/80	Stylewriter II

We carry the entire Macintosh line

**1-800-299-MACS**  
fax 409-761-6299

**Macs for Less!  
Guaranteed!**

All CPU's! All New!

Buy from us,

or you'll pay too Much!

**1-(800) 460-0085**

## Peripherals

**16 CD-ROM TOWER**  
**12 CD-ROM TOWER**  
**8 CD-ROM TOWER**  
**4 CD-ROM TOWER**

All CD-ROMs on-line,  
full time to all users  
on network thru  
proprietary interface  
and cable included.  
Specify PC or MAC with  
order. Satisfaction  
guaranteed.

**TAC**  
PO BOX 650 Meridianville,  
AL 35759

**(205) 828-6920**  
FAX (205) 828-6922

## Peripherals

### MICRO PRODUCT DISTRIBUTORS

New Macs In Stock!

LC II 4/80	\$950.00
LC III 4/80 New!	\$1258.00
II VX 5/80 W/CD	\$2075.00
Centris 610 4/80 New!	\$1643.00
Centris 650 4/80 New!	\$2383.00
Quadra 700 4MB	\$2230.00
Quadra 800 8/230 New!	\$3926.00
Quadra 950 8MB	\$4644.00
Pwrbk 165C 4/80 New!	\$3160.00
Pwrbk 180 4/80	\$3555.00

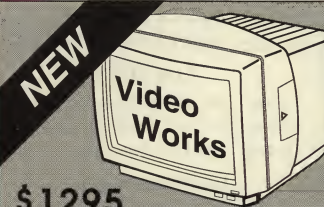
Complete line of Apple peripherals  
Quantum Hard Drives & memory.

Call for prices !!!

Visa, Mastercard & COD's Welcome

**1-800-272-4441**

8155 NW 33rd St, Miami, FL 33122  
305/477-4441 • 305/591-8723 Fax



**\$1295**

**20" MultiSync  
Color Monitor**

Mac or IBM compatible

72dpi (1024 x 768)

82dpi (1152 x 870)

1 Year Warranty

30 day money-back guarantee

**510/838-1031 Phone**  
**510/838-0689 FAX**

Dealer Pricing available

**Who's reading  
MacWEEK?**

Serious Buyers.  
95,000 Corporate, gov-  
ernment, and academic  
professionals who buy  
Macintosh products in  
volume.

Leave your mark on volume buyers through  
**MacWEEK's MarketCenter.**



From the beginning,  
Relax's relationship  
with corporate  
customers has been  
strong.

As a matter-of-fact,  
over 50% of our sales  
are from repeat  
customers.

Our customers must  
be satisfied since the  
majority of our new  
customers are from  
referrals.

We must be doing  
something right.

## SIMMs & Accel.

### Mac II, IIx, IIcx, IIci & Quadra:

Classic 3 Meg. Card w/1 Meg. ....	49
1 Meg. - 1M x 8 - 120 .....	26
1 Meg. - 1M x 8 - 100 .....	29
1 Meg. - 1M x 8 - 70 .....	32
2 Meg. - 2M x 8 - 80 .....	59
4 Meg. - 4M x 8 - 80 .....	119
4 Meg. - 4M x 8 - 70 .....	129
8 Meg. - 8M x 8 - 80 .....	279
16 Meg. - 16M x 8 - 80 .....	499
16 Meg. - 16M x 8 - 80 (Low) ....	529
16 Meg. - 16M x 8 - 70 (Q-950) ..	499

### Mac IIcx:

4 Meg. - 4M x 8 - 70 (IIcx) .....	149
8 Meg. - 8M x 8 - 80 (IIcx) .....	299
16 Meg. - 16M x 8 - 80 (IIcx) ....	599

### Video Memory:

Mac LC - 512K Video SIMM .....	49
Quadra 700 - 256K Video SIMM ..	29
Quadra 900 - 256K Video SIMM ..	29
Quadra 950 - 256K Video SIMM ..	29

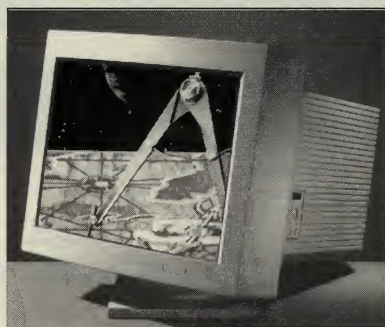
All SIMMs have a limited lifetime warranty! Call for latest prices!

### Mac Powerbook:

Powerbook 100 - 4 Meg. Card ..	179
Powerbook 100 - 6 Meg. Card ..	229
Powerbook 140/170 - 4 Meg. ....	159
Powerbook 140/170 - 6 Meg. ....	209
Powerbook 160/180 - 6 Meg. ....	229
Powerbook 160/180 - 8 Meg. ....	349
Powerbook 160/180 - 10 Meg. ...	449
Powerbook 210/230 - 8 Meg. ....	399
Powerbook 210/230 - 10 Meg. .	Call
Powerbook 210/230 - 20 Meg. .	Call
PowerBook 12-Hour Battery Pack 49	

### Accelerators & Cache:

Co-Processor - Mac LC .....	79
Co-Processor - Mac Classic II .....	79
IIci Cache Card .....	169
IIci Cache w/FPU Socket .....	149
IIci Cache w/FPU Installed .....	199
Classic Accel w/Co-Processor ...	199
SE Accelerator w/Co-Processor .	279
Quadra 700/900 Accelerator ....	299
7V5-A Increases processor speed from 25MHz to 30MHz!	
Quadra 900 Accelerator .....	139
700DD-9 Increases processor speed by 25% to 33MHz!	



### 20 Inch Color Trinitron!

**\$1,599**

Monitor Only

Trinitron Monitor Only .....	1,599
Business Package* - 256 Color .....	1,799
Artist Package* - 16 Million Color ..	2,449

\* Package includes a new 20" Captronics CDS-8920 Mac compatible Trinitron color monitor, video board, and cable. 72 dpi for WYSIWYG. 1024 x 768.

radius



Monochrome Pivot Monitor ...	745
PrecisionColor Pivot 15" .....	949
19" Monochrome Monitor .....	899
PrecisionColor Display/19 ...	1,999
Hitachi tube - multifrequency.	
PrecisionColor Display/20 ...	2,299
Sony Trinitron tube - multifrequency.	
Color Display/21 .....	2,999
Two-page display. Hitachi tube - 1,152 x 870.	
Mono Pivot Video Board .....	249
Color Pivot Video Board .....	499
PrecisionColor 8XJ .....	489
256 colors (8-bits) at maximum resolution (1,152 x 882), 4 display resolutions, accelerated.	
PrecisionColor 8X .....	739
256 colors (8-bits) at maximum resolution (1,152 x 882), 4 display resolutions, accelerated.	

## RASTEROPS®

### Custom Color 20" System 24-Bit Color - 20" Trinitron Monitor

**\$4,199\***

ProColor 32 .....	3,149
24XLi .....	1,859
PaintBoard 24 .....	1,459
PaintBoard Li .....	849
8XL .....	479
24STV - Multi Media .....	799
MoviePak .....	1,549
24XLTV Multi Media ..	2,749
24MxTV Multi Media ..	1,649
MediaTime Multi M. ...	1,599
ClearVue/Classic .....	299
ClearVue/LC .....	299

\* Include \$200 back direct from RasterOps. Offer expires 3/31/93.

## Video Monitors & Packages

14 Inch  
256 Color  
Monitor!

**\$359**

Complete 8-Bit Package - \$499

Compatible with Macintosh On-Board Video:  
LC, LCII, si, ci and Quadra 900/950



## MoviePak

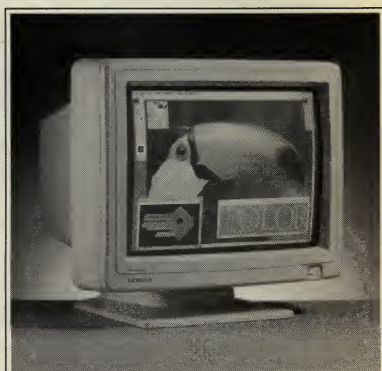
### Adobe Premiere Special!

MoviePak works with all RasterOps multi-media display adapters to give you full-motion digital video recording, and full-screen playback and print-to-tape capabilities, all in a single-slot solution for any size Macintosh.

**\$1,549**

RASTEROPS®

For a limited time, MoviePak includes Adobe Premiere free - a \$695 value!



20 Inch Hitachi  
256 Color  
Monitor!

**\$799**

Monitor Only

20" Hitachi Monitor Only .....	799
Business Package* - 256 Color .....	999
Artist Package* - 16 Million Color ..	1,649

\* Package includes a new 20" Hitachi Mac compatible color monitor, video board, and cable. 72 dpi for WYSIWYG. 1024 x 768.

Your satisfaction is guaranteed or your money back!

## 20 Inch Sampo OfficePro Ila 256 Grayscale! \$599

Monitor Only

Monitor Only .....	599
Mac II, x, fx, cx, ci Package* .....	799
Mac LC, LCII, SE/30 Package* .....	999

\* Package includes a new 20" Sampo OfficePro Ila Mac compatible grayscale monitor, video board, and cable. 72 dpi for WYSIWYG. 1024 x 768.

Your satisfaction is guaranteed or your money back!



## Ethernet/Network



Asanté MacCon3 - 64K ..... 189  
The 3-in-1 (Thick, Thin and 10BaseT) Ethernet card for most expandable Macintoshes including the IIsi and SE/30. Not available for the LC or LCII.

Asanté MacCon+ - 64K ..... 149  
Economical, 64K high-performance Ethernet for almost every model of Macintosh. Select either Thick/Thin or Thick/10BaseT. The Asanté MacCon+ models for the LC, LCII and IIsi each have a socket for a co-processor.

Asanté FriendlyNet Adapters ..... 69  
Designed to work with the new Apple Ethernet cabling system - a plug-and-play networking system which makes Ethernet as simple and easy as LocalTalk.

Asanté 10BaseT Hub/8 ..... 239  
An economical way to expand your Ethernet network using unshielded twisted pair wiring (10BaseT).

Asanté 10BaseT Hub/12 ..... 479  
A more sophisticated and larger version of the Asanté 8-port Hub. The most economical way to expand your Ethernet network using unshielded twisted pair (UTP, 10BaseT). Fully supports IEEE specifications.

AsantéHub 1012 ..... 1,379  
A 12-port, intelligent 10BaseT hub. Built-in expansion slot for internet-working option cards (optional SNMP in-band module). Multiple hubs can be interconnected via BNC, RJ45 and AUI. Works with AsantéView software (optional) for control directly or remotely.

Asanté Print ..... 349  
An inexpensive Ethernet-to-LocalTalk converter that easily connects one or two LocalTalk peripherals to an Ethernet network. With no switches to set or installation software to load, it is smart enough to work right out of the box. Thick/Thin or Thick/10BaseT.

TechWorks Ethernet Cards ..... 99  
We made a special purchase of TechWorks Ethernet NuBus cards and are offering them on a first-come-first-served basis. Limited to supply on-hand.

Tribe LocalSwitch ..... 1,499  
LocalSwitch is a 16-port intelligent packet-switching hub for Macintosh networks. Using standard LocalTalk protocol and twisted pair wiring, LocalSwitch processes many network transmissions simultaneously.



**\$1,499** Tribe LocalSwitch

## Modems

SupraFAX Modem Plus 2,400 ..... 199  
2,400 bps Modem/9,600 send-receive FAX. v.42bis data compression for up to 9,600 bps data.



SupraFAX Modem v.32bis 14,400 ... 349  
14,400 bps Modem/14,400 send-receive FAX. v.42bis compression for up to 57,600 bps data.

All SupraFAX modems include STP and MicroPhone software, cable and have a 3-year Warranty

Quicktel 2400/9600 FAX/Modem ... 139  
2,400 bps Modem/9,600 send-receive FAX. v.42bis compression for up to 9,600 bps data. Incl. software.

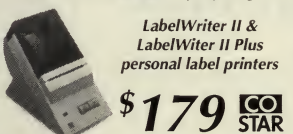
Quicktel v.32bis 14,400 ..... 299  
14,400 bps Modem/14,400 send-receive FAX. v.42bis compression for up to 57,600 bps data.

## CoStar Printers



**\$439**  
AddressWriter personal envelope and label printer

AddressWriter Printer ..... 439  
144 x 144 impact dot-matrix print head. Optional label feeder will handle a variety of pin-fed labels for added convenience and value. Specify voltage.



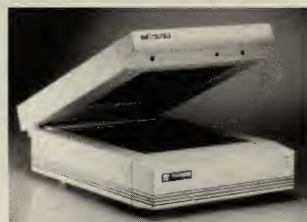
**\$179**  
LabelWriter II & LabelWriter II Plus personal label printers

The LabelWriter II and II Plus use direct thermal input technology to produce high-quality labels in a variety of sizes. The LabelWriter can be attached directly to your computer or AppleTalk Network.

LabelWriter II Mac ..... 179  
Handles up to 350 labels per roll. Maximum label size: 1-1/8" x 3-1/2". Prints one label in 1-1/2 secs.

LabelWriter II Plus Mac ..... 249  
Handles up to 700 labels per roll. Maximum label size: 2-1/4" x 4". Prints one label in 3-1/2 to 7 secs.

## 300/600/800/1,200 dpi Color & Grayscale Scanners



Tamarack 600 dpi Color Scanner \$979  
and Slide Attachment \$549

Tamarack 600 Color Scanner:  
24-Bit Color - 8.5" x 11.5" ..... 979  
Slide Attachment (shown) ..... 549  
PhotoShop LE (limited version)\* ..... 99  
PhotoShop 2.0 (full version)\* ..... 199

### Relax Color: (Epson Engine)

24-Bit Color Scanner - 8.5" x 11.5"	
300 dpi - 110 VAC .....	999
300 dpi - 220 VAC .....	1,099
Color Studio LE (limited version)* ..	79
Color Studio 1.5 (full version)* .....	159

### Umax Color Scanners:

UC630** - 8.5" x 14"	
24-Bit 600 dpi w/PhotoShop ...	1,079
Transparency/Slide Attachment .	789
Auto Document Feeder .....	479
UC1200S** - 8.5" x 14"	
24-Bit 1,200 dpi w/PhotoShop .	2,999
Transparency/Slide Attachment .	889

### Relisys Color Scanner:

ColdScan 800 - 8.5" x 14"	
24-Bit 800 dpi .....	1,099
PhotoShop LE (limited version)* .....	99
PhotoShop 2.0 (full version)* .....	199

\* with purchase of scanner, \*\* includes PhotoShop

## SHARP® JX-320 \$999

### 16 Million Color - 300/600 dpi

An affordable, quality, flatbed 8-1/2" x 11", 24-bit color scanner for business and professional use.

Sharp's patented one-pass system ensures quality color while reducing scan times. 600 DPI using Sharp's proprietary software. By strobing three colored fluorescent bulbs through filters the Sharp system ensures optimal color accuracy and eliminates misregistration for clearer reproduction.

The Sharp JX-320 is the first color scanner fully compliant with the new SCSI-2 standard which eliminates the need for special drivers.

Includes the full version of PhotoShop. OCR compatible. Built-in command set includes: downloadable Gamma Tables; Edge Emphasis; Brightness; and, Lightness. 110 VAC only.

Sharp JX-320 Color Scanner ..... 999  
Transparency Option JX-32F3 ..... 799

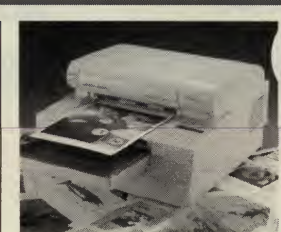
## PostScript Printers



600 dpi Engine, 8 ppm, RISC Processor, AppleTalk on-board. Scalable typefaces (PostScript and PCL5) generating thousands of fonts. Printer emulations include Hewlett Packard, IBM ProPrinter & Epson. Parallel and serial interface with automatic sensing. 2 MB RAM (expandable to 8MB).

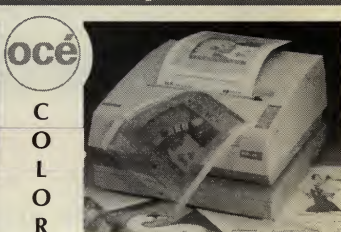
**\$1,499**

## Mac & IBM Compatible



The Océ G5241 puts the power of color PostScript® printing on your desktop using a true Adobe® PostScript interpreter. Using the thermal transfer method, the G5241 prints either 3 or 4 color on letter or A3 size, paper or overhead transparencies at 300 dpi.

**\$1,999**



The Océ G5232 has all the great qualities of the G5241 but increases the printing capability to tabloid size pages at 300 dpi. True PostScript®, 35 Adobe fonts in ROM, downloadable fonts sup-ported. 8Mb Ram, 20Mb hard drive.

**\$2,999**

## Call or FAX for Fast Service!

FAX 510-471-6267 Hours: 8 a.m. - 5 p.m. PST, Mon.-Fri.  
VISA, MasterCard, C.O.D. No billing until product is shipped. No surcharge for credit card, terms available for approved accounts. We ship same day via Federal Express.



© 1993 Relax Technology, Inc., 3101 Whipple Road, Union City, California 94587-1291.  
RELAX, FreeLance, Sierra, Mesa, Mobile, Pocket Portable, View II, and Vista are trademarks of Relax Technology, Inc. All Trademarks and Registered Trademarks are the property of their respective holders. Prices subject to change without notice. Not responsible for typographical errors.

✓ Check us out! We keep our customers happy by offering them what they want...

✓ Quality and selection. We offer a wider choice of award-winning products. More choices makes for wiser selections.

✓ 30 day money back guarantee. You must be satisfied or we want you to return the product. We count on word-of-mouth advertising. An unhappy customer doesn't work for us.

✓ Service and security. Since 1978 Relax's commitment to customer satisfaction, has meant quality products and service. Winner of MacWorld Magazine's Service Hero Award, our sales and service team treats service very seriously

If you need help, our Express Service Program (ESP) will have you up and running in less than 48 hours - guaranteed! We even follow-up on service calls to insure that you get the help you need and that we are attaining our customer satisfaction goal.



## SyQuest Removable Drives

2-Year Warranty!



<b>\$389</b>	<b>\$489</b>	<b>\$589</b>
Mobile 44 SQ555	Mobile 88 SQ5110	Mobile 88+ SQ5110C
Reads and writes both 44 and 88 Meg. cartridges!		
Cartridge 1 to 4 5 and Up	Cartridge 1 to 4 5 and Up	
44 Meg. .... 63 61	88 Meg. .... 98 95	



**DIVA VIDEO SHOP**  
Plus Megs of  
QuickTime Movies  
\*FREE\* on Every  
Cartridge !!

## Bernoulli Mac 90

**\$499**



Omega has  
enjoyed an  
excellent  
reputation  
for years as  
the provider  
of high quality  
removable storage for  
IBM computers.  
Now they have brought their years of experience to  
the Macintosh.  
90 megabytes of storage in each data cartridge.  
Includes software and cables.

5-year warranty on all  
data cartridges!  
Cartridges - \$169

## DAT, ExaByte & Teac Tape Drives & Media

Tape Drives include media, software and cables!  
Tape Drives:  
160 Meg. Tape Vista - TEAC ..... 449  
250 Meg. Tape Vista - Archive ..... 599  
600 Meg. Tape Vista - TEAC ..... 699

DAT & ExaByte Drives Include  
Retrospect Software!

DAT 4 mm Drives:  
2.0 Gig. DAT Sierra - Archive ..... 1,299  
2.0 Gig. DAT Sierra - ExaByte DAT . 1,199  
2.0 Gig. DAT - Hewlett Packard ..... 1,399

Compression DAT 4 mm Drives:  
8.0 Gig. DAT Sierra - Archive ..... 1,399  
8.0 Gig. DAT Sierra - ExaByte DAT . 1,499  
8.0 Gig. DAT - Hewlett Packard ..... 1,599

ExaByte Helical Scan 8 mm Drives:  
2.2 Gig. Tape Vista - ExaByte 8200 . 1,799  
5.0 Gig. Tape Vista - ExaByte 8500 . 2,799

**2.0 Gig.  
DAT Tape**

Retrospect  
software & tape  
included!

**\$1,199**

EXA-BYTE

Relax 600 Meg. Tape ..... 699  
Selected for performance, value and  
service. Quality at low cost.  
Perfect for backing up hard disks up  
to 600 megabytes. Complete  
package includes software, cables  
and media. MACWORLD - 12/92.



## Introducing FreeLance Desktop performance that fits in your pocket!

Our powerful 80MB, 120MB and 160MB FreeLance drives are designed  
for the Apple PowerBook computers - we even use the same quality  
drives Apple uses! Light (less than 10 ounces) and fast (17 ms seek time).  
The FreeLance feature quiet and reliable Quantum Go•Drives for added  
value. Our FreeLance Value Pack includes everything you need to work  
with the PowerBook including a power supply and SCSI cable for the  
Macintosh. The FreeLance Dock™ adds battery power and charger for  
convenience and extended use on-the-go.

### FreeLance Drives:

80 Meg. FreeLance Go•Drive ..... 429  
120 Meg. FreeLance Go•Drive ..... 549  
160 Meg. FreeLance Go•Drive ..... Call  
Includes your choice of 110V or 220V power supplies and a  
PowerBook or standard Macintosh SCSI cable.

### FreeLance Dock, Battery & Charger ..... 229

This is a complete package, including your choice of 110V or  
220V charger, a PowerBook 140-180 compatible battery,  
transportable power cable and SCSI cable. Use the FreeLance  
Dock on-the-go or in the office. The battery is interchangeable  
with the PowerBook's. You can even fully recharge your  
PowerBook's battery in just 45 minutes while you're working.

### FreeLance Options:

PowerBook Battery - 140-180 ..... 49  
SCSI Cable - DB25M/DB25M ..... 19  
SCSI Cable - DB25M/Cent50M ..... 19  
Adapter - DB25M/HDI30 ..... 19



## Premium Hard Disk Drives - Macintosh

Seagate	3-1/2" Half Height	Internal	External
510 Meg. - ST1581N, 14 ms. ....	939	999	
1.0 Gig. - ST11200N, 14 ms. ...	1,339	1,399	
5-1/4" Full Height - WREN			
1.0 Gig. - ST41200N, 15 ms. ...	1,299	1,399	
1.4 Gig. - ST41651N, 15 ms. ...	1,699	1,799	
1.9 Gig. - ST42100N, 12.9 ms. ...	1,939	2,039	
5-1/4" Full Height - ELITE Ultra-High Performance			
1.4 Gig. - ELITE-I, 11.5 ms. ....	1,999	2,099	
2.1 Gig. - ELITE-II, 11 ms. ....	2,849	2,949	
3.5 Gig. - ELITE-III, 11 ms. ....	3,439	3,539	
Fujitsu	3-1/2" Half Height		
520 Meg. - 2624FA, 9 ms. ....	939	999	
1.2 Gig. - 2694SA, 8.5 ms. ....	1,639	1,699	
5-1/4" Full Height			
1.2 Gig. - 2266SA, 11.5 ms. ....	1,399	1,499	
2.0 Gig. - 2652SA, 11.5 ms. ....	2,299	2,399	

Conner	3-1/2" Half Height	Internal	External
42 Meg. - CP-3040, 25 ms. ....	179	239	
85 Meg. - CP-30080E, 17 ms. ....	199	259	
120 Meg. - CP-30100, 19 ms. ....	279	339	
170 Meg. - CP-30170E, 17 ms. ....	299	359	
212 Meg. - CP-30200, 12 ms. ....	379	439	
545 Meg. - CP-30540, 8.5 ms. ....	909	969	
Hewlett Packard	3-1/2" Half Height		
422 Meg. - HP2235, 12.6 ms. ..	1,039	1,099	
1.2 Gig. - HP2247, 12.6 ms. ....	1,539	1,599	
5-1/4" Full Height			
1.2 Gig. - HP97558, 13.5 ms. ..	1,639	1,739	
1.6 Gig. - HP97560, 13.5 ms. ..	1,989	2,089	

**Special Purchase**  
**\$1,239**  
15 ms. average access.  
External Model \$1,339

**1.0 Gig. Hard Disk**  
**Seagate**

Nobody knows more about performance  
hard disk drives than Seagate! This is an  
exceptional value for a fast and dependable  
top-of-the-line model. Compare. For a  
limited time, we are offering a Gigabyte hard  
drive for what others charge for their 500  
megabyte model! Available only while  
quantities last!

Save \$100. Model ST41200NM.

## Macintosh CD-ROM Players

### Kodak Multisession Compatible



**\$649**

### Toshiba CD-ROM - XM3401B ..... 649

Featuring the Multisession Toshiba XM3401B. Vista CD-ROM  
provides state-of-the-art performance including a sealed  
contamination free environment and an automatic lens cleaning  
mechanism which dramatically improves reliability. Fast 200  
milliseconds average access. Full audio control via software is  
provided by the Music Box software. Includes sample CD.

### Texel Multisession CD-ROM ..... 549

Featuring the Texel DM3024. This is a performance drive with  
235 ms average access and double the normal speed - 300  
KBytes/sec. data transfer. Kodak Photo-CD compatible!

**\$299**

Portable Player

**NEC**

### CD-ROM - Mesa Portable ..... 299

New! Manufactured for Relax by NEC, the Mesa is a fast,  
portable and fully functional CD-ROM player for music and  
data. Call for details about this bargain performer.



## Rewritable Optical Drives



**\$1,499**  
**600 Meg.  
ISO Optical**

- Industry Standard - ISO Certified
- Macintosh - IBM Compatible
- Low Cost - High Performance

Large, fast and affordable. We offer a variety of  
solutions for your large capacity data storage needs.

600 Meg. Optimum ISO Model 750 . 1,599  
Premium Quality at Low Cost - 60 ms. access.  
While Supplies Last - Limited Quantity!

600 Meg. Ricoh ISO 5030E-II ..... 1,499  
Factory reconditioned. Full warranty. 67 ms.  
access.

600 Meg. Ricoh ISO 5031E New! ... 2,599  
High performance - 35 ms. average access.

1.0 Gig. Maxoptix Tahiti-II ..... 3,499  
High capacity - 1 Gigabyte - 35 ms. average access.

600 Meg. Pioneer MultiFunction ..... 2,199  
Rewritable and WORM in one unit.

600 Meg. Pioneer WORM ..... 1,799  
Premium quality, best selling WORM

### Media:

128M 3-1/2" Optical .....	39	35
600M 5-1/4" Optical Plastic .	99	95
600M 5-1/4" Optical P 5-Pk	475	460
600M 5-1/4" Optical Glass .	169	159
1.0G Glass, Maxoptix .....	239	229
600M Multifunction .....	179	169
600M WORM, Pioneer .....	109	99



**128 Meg. Optical  
Macintosh &  
IBM compatible  
\$999**

Each 3-1/2" erasable optical cartridge holds over 120  
megabytes of data! The Sierra MO (shown) is an ideal  
primary or backup storage device for IBM or Macintosh  
personal computers. Featuring the Panasonic, RICOH or  
EPSON drive, the Sierra MO is IBM and SONY compat-  
ible - and it's faster! Complete package - includes SCSI  
cable, On Location software, and power supply.

Includes media, software & cables!  
128 Meg. Ricoh ISO ..... 1,099  
128 Meg. Epson ISO ..... 1,049  
128 Meg. LMSI - Panasonic ... 999

**Verbatim**

### Verbatim Media:

128 Meg. 3-1/2" Optical ....	44	39
128 Meg. 3-1/2" 5-Pk .....	195	175
600 Meg. 5-1/4" Plastic ..	109	105
600 Meg. 5-1/4" P 5-Pk ..	495	475

**6-Disc CD-ROM Mini-Changer**  
More than 3 Gig of Data On-Line!

**\$899**

**PIONEER**

Each compact, easy-loading magazine holds up  
to 6 different discs. Additional Mini-Changers  
can be daisy-chained together to create a CD-ROM library of over 20 Gigabytes of on-  
line information! Compatible with SUN, IBM and Macintosh. Can even be used as a  
CD-Audio jukebox! Full audio control via software is provided by the Music Box  
software (included). Includes SCSI cable, Mac software, and sample CD-ROM. New  
- DRM-604X. 4 times the transfer rate - 600K/sec.

DRM-600A 6-Disc .... 899 DRM-604X 6-Disc . 1,295

## Case Kits

Cases are  
Made by  
Relax In  
the U.S.A.

Includes 35 watt power supply, fan, SCSI ID & cable.  
Half Height ..3.5" or 5.25" ..... 89  
Half Height...with front cut out ..... 89

55 Watt  
Universal  
90-265 volt  
Power Supply

Includes power supply, fan, SCSI ID & cable.  
Full Height...5.25" with cut out ..... 119

Portable  
Case Kit for  
PowerBook or  
any Macintosh

Includes SCSI cable, SCSI ID, & ADB power cable  
PowerBook model with HDI-30 cable .. 89  
Standard model with Apple DB25 cable 89

## Cables/Terminator

Hi-Quality  
Molded SCSI  
Cables

2' AppleDB25 to Cent.50M ..... 9  
2' Cent.50M to Cent.50M ..... 19  
6' Cent.50M to Cent.50M ..... 29

TermiGard LED  
Termination Power  
Indicators  
The Best you  
can buy!

Standard Single Ended Cent50 ..... 9  
Active Single Ended Cent50 ..... 29

Macintosh  
Video Cables  
for On-Board Video  
or Most Monitor  
Brands

Mac 15 pin to RGB ..... 39  
Quadra/Centra 16" or 21" ..... 49

## SCSI Utilities

RELAX Formatting Utility supports Hard  
Drives, Optical Drives, and Removables.  
Mac Utilities v1.25 ..... 19

Software Architects  
Formatter One and  
Formatter Five offer  
partitioning, AU/X  
compatibility, Testing,  
DOS Support and much  
more.

Formatter One ..partitioning, AU/X ..... 49  
Formatter Five ..Dos Support ..... 159

DK Research offers a wide  
variety of SCSI Software.  
Support includes, Hard  
Drives, Optical Drives, and  
Tape Drives.

Hard Drive ..partitioning, AU/X ..... 39  
Optical Drive ..partitioning, AU/X ..... 59  
Tape Backup ..... 59

## PowerBook

CPU software is all the  
things Apple left out.  
Manage your PowerBook  
with these state-of-the-  
art Utilities.

Works on all battery powered Macs!  
Half Height ..3.5" or 5.25" ..... 59

Targus carrying  
cases are known  
for their quality  
and good looks.  
Many models are  
available.

All Cases are Black with Leather Trim!

PowerBook ..... 59  
Mac Classic ..... 69  
Mac Deluxe SE ..... 79

We will **BEAT** any competitor's price for  
comparable product - call for details!

**510-471-6112**

**RELAX**  
T·E·C·H·N·O·L·O·G·Y

**Save!!  
Relax Weekly Specials**

Hard Disk Drives:	Tape Drives:
20 Meg. Seagate ST325N ..... 169	60 Meg. TEAC MT-2ST/45S2 ..... 299
Monitors:	CD-ROM Drive:
Monitem 20" Color With 8 BitVideo Card (Demo) ..... 1,999	Pioneer DRM 600A ..... 899

Relax...you're in good company. Since 1978. 510-471-6112



## Peripherals

**ProDirect**

**Quantum** Best Byte for MACs!

Capacity	Int.	Ext.	Capacity	Int.	Ext.
ELS 42 Mb	\$169	\$229	LPS 240 Mb	395	455
ELS 85 Mb	199	259	Pro 425 Mb	879	939
ELS 127 Mb	269	329	LPS 525 Mb	899	959
ELS 170 Mb	305	365	Pro 700 Mb	1185	1245
GO 120 Mb Drive	425	525	Pro 1050 Mb	1325	1385
160 Mb GRS 2.5"	519	619	Pro 1225 Mb, 10 MS	1485	1545

**MICROPOLIS Music & Multi Media Apps, Novell Certified**

Capacity	Model	Specifications	Int.	Ext.
765 Mb	M1624	5.25" 14 MS, 5 yr. War. SCSI-2	\$1199	\$1264
1.2 Gb	M2112	3.5" 10 MS, 5 yr. War. Fast SCSI-2	1615	1680
1.2 Gb	M1598	5.25" 14 MS, 5 yr. War. Fast SCSI-2	1499	1619
1.5 Gb	M1528	5.25" 14 MS, 5 yr. War. Fast SCSI-2	1748	1865
2.0 Gb	M1548	5.25" 14 MS, 5 yr. War. Fast SCSI-2	1999	2119
2.4 Gb	M1924	5.25" 11 MS, 5 yr. War. Fast SCSI-2	2669	2789

*Very Quiet - Great For The Studio!*

**HEWLETT PACKARD** Great For MACs & Workstations

Capacity	Model	Specifications	Int.	Ext.
1.2 Gb	C2247	3.5" 10.5 MS, 5 yr. War. Fast SCSI-2	\$1629	\$1694
1.2 Gb	97558	5.25" 13 MS, 5 yr. War. SCSI-2	1555	1675
1.6 Gb	97560	5.25" 13 MS, 5 yr. War. SCSI-2	1899	2019
2.11 Gb	C3009	5.25" 11 MS, 5 yr. War. Fast SCSI-2	2635	2755
2.35 Gb	C3010	5.25" 11 MS, 5 yr. War. Fast SCSI-2	2755	2885
2 Gb DAT	35470	3.5" Includes Retrospect	N/A	1389
5 Gb DAT	35480	3.5" Includes Retrospect	N/A	1699

*"Mass Storage That Works™"*

**FUJITSU** **CONNER**

Capacity	Int.	Ext.	Capacity	Int.	Ext.
185 Mb 3 yr. warr.	\$315	\$379	85 Mb, LPS	\$205	\$265
520 Mb 5 yr. warr.	899	969	120 Mb, LPS	275	335
1.2 Gb 5 yr. warr.	1279	1399	170 Mb, LPS	295	365
1.2 Gb 3.5" 5 yr. warr.	1695	1755	212 Mb, 12 MS Fast	368	433
2.06 Gb 5 yr. warr.	2155	2275	540 Mb	889	968
2.4 Gb 5 yr. warr.	2398	2518			

*Conner Drives Are Apple Authorized.*

**TOSHIBA** **UMAX**

Capacity	Int.	Ext.	UC 1200 with Adobe Photoshop	\$2979
1.2 Gb 12MS, 3.5"	\$1379	\$1439	UC 840 with Adobe Photoshop	1269
877 Mb 12MS, 3.5"	1085	1155	UC 630 with Adobe Photoshop	1085
213 Mb, 2.5"	689	779	Auto Doc. Feeder/Transparency	485/685

**POWERBOOK MEMORY SPECIALS**

Model	Capacity	Price	Capacity	Int.	Ext.
PB 140/170	4 Mb	\$165	185 Mb Fujitsu	\$299	\$364
PB 140/170	6 Mb	209	1.2 Gb 3.5" Fujitsu	1689	1754
PB 160/180	4 Mb	189	1.5 Gb Micropolis	1699	1819
PB 160/180	6 Mb	269	2.0 Gb Micropolis	1979	2099
PB 160/180	8 Mb	345	PB 160/180 4 & 6 Mb Memory	\$179/\$259	
PB 160/180	10 Mb	315			

Memory For All Mac Models Call

*• All drives include software, mounting brackets and cables.  
• 30 day money back guarantee on all hard drives.*

800-524-9952

4976 Lincoln Drive, Minneapolis, MN 55435  
International Orders Fax 612.935.8352 or Call 612.935.8201 • Dealer Inquiries Welcomed  
Volume Discounts Available • Corporate • Educational • Government P.O.'s Accepted  
Please Specify For: Mac, HP Workstation, SUN Sparc or IBM RS6000

Major Manufacturer

# Postscript Laser Printer

- MAC & PC Compatible
- 2 MB RAM

- Canon Engine 4 Pages / Minute
- PostScript and HP II Compatible
- 35 Apple TrueType Fonts
- Parallel, Serial, AppleTalk Interfaces

Even Less **\$799<sup>99</sup>** Plus S&H

TREDEX

5306 Beethoven Ave.  
Los Angeles, CA 90066

800-338-0939 Ext. 3001

Visa, MC, & Discover Accepted California: 310-301-0300 Fax: 310-301-0313

# THE SOURCE FOR MAC DRIVES

30 DAY MONEY BACK GUARANTEE

IN AMERICA AND THE WORLD

DRIVE PRICES GO DOWN. CALL FOR CURRENT PRICES.

S.A.G. hard drives with the best price, service and support around. We have been providing hard drives and storage systems to the international computer service industry for the last 5 years to the people who replace and upgrade computer systems for major corporations worldwide. They demand and depend on expert technical assistance, aggressive pricing and immediate delivery. Why settle for second best?

**MICROPOLIS**  
5 YEAR WARRANTY

TYPE	MB	SIZE	SEEK	INT.	EXT.
2105	560	3.5	10	\$930	\$1023
1624	660	HH	14	\$1053	\$1170
2112	1035	3.5	10	\$1199	\$1292
1598	1049	FH	14	\$1398	\$1515
1528	1345	FH	14	\$1667	\$1784
1908	1405	FH	10	\$1842	\$1959
1548	1748	FH	14	\$1866	\$1983
1924	2070	FH	11.5	\$2451	\$2568
1936	3022	3.5	12	\$3445	\$3562

**FUJITSU**  
5 YEAR WARRANTY

TYPE	MB	SIZE	SEEK	INT.	EXT.
M2623FA	425	3.5	12	\$797	\$891
M2624FA	520	3.5	12	\$770	\$862
M2266S	1079	FH	14	\$1195	\$1312
M2694	1080	3.5	10	\$1489	\$1581
M2652S	1750	FH	11	\$2083	\$2200
M2654S	2061	FH	11	\$2277	\$2395

**DEC**  
5 YEAR WARRANTY

TYPE	MB	SIZE	SEEK	INT.	EXT.
DSP3085S	850	3.5	12	\$1249	\$1344
DSP3105S	1050	3.5	12	\$1306	\$1401
DSP3160S	1660	3.5	12	\$1926	\$2021
DSP5200S	2000	FH	10	\$2005	\$2100
DSP5350S	3500	FH	10	\$3135	\$3230

- Immediate Delivery: we have a 92% rate of shipping within 24 hours.
- Overnight delivery available.
- Product knowledge: our sales people and technicians will provide the most cost effective drive or subsystem solution.
- Volume discounts available.

**SEAGATE**  
1 YEAR WARRANTY \*5 YEAR WARRANTY

TYPE	MB	SIZE	SEEK	INT.	EXT.
ST1480N	430	3.5	14	\$795	\$889
ST1581N	525	3.5	14	\$886	\$980
ST3600N	540	1"	10.5	\$859	\$953
ST4767N	665	FH	12	\$1228	\$1345
ST1980N	860	3.5	9.9	\$1082	\$1175
ST41200N	1037	FH	16	\$1082	\$1199
ST11200N	1037	3.5	10.5	\$1169	\$1259*
ST41600N	1420	FH	15	\$1755	\$1872
ST41650N	1420	FH	11.5	\$1491	\$1608
ST42100N	1900	FH	12.9	\$1807	\$1924*
ST42400N	2100	FH	10	\$2451	\$2568*
ST43400N	2845	FH	10	\$3219	\$3334*

**QUANTUM**  
2 YEAR WARRANTY

TYPE	MB	SIZE	SEEK	INT.	EXT.
LPS240S	240	1"	16	\$382	\$474
LPS525S	525	1"	10	\$915	\$1007
PD700S	700	1"	10	\$1155	\$1247
PD1050S	1050	3.5	10	\$1324	\$1416
PD1225S	1200	3.5	10	\$1503	\$1595

**SPECIALS!**

TYPE	MB	SIZE	INT.	EXT.
Fujitsu	520	3.5"	\$770	\$862
Seagate	1.04Gb	3.5"	\$1169	\$1259

- Technical assistance: toll FREE service Monday thru Friday, 9am to 5pm EST.
- Payment: VISA, M/C, Corporate, Gov't and Education Purchase Orders welcome.
- No surcharges for C.O.D. or Credit Cards. We check for stolen credit cards.

1-800-989-3475

S.A.G. ELECTRONICS

1506 GORHAM STREET, SUITE 207 • LOWELL, MA 01852 • FAX (508) 683-3528 • OFFICES: MASSACHUSETTS • PENNSYLVANIA

RMA# must be acquired first. Shipping is non-refundable. Returns may be subject to restocking fee.

**MacSee**

Land of Sales and Support

Free 2 hrs. Training on Macintosh  
FREEHAND, PHOTOSHOP, QUARKXPRESS & MAC  
with purchase of Desktop Publishing Work Station

# Macintosh

Centris 610 8-80	\$1895	<b>Power Books</b>	
Centris 650 8-230	CALL	DUO 230 4-80	\$2199
Centris 650 8-425	\$3869	160 4-80	\$2485
Quadra 800 8M-1GB	\$4849	165	\$3199
Quadra 950 400	\$5099	180 4-80	\$3649

Quadra 550-400 \$3099			
<b>MONITORS</b>		<b>PRINTERS</b>	
SuperMac 21"GS	\$1099	Apple LaserWriter LS	\$739
SuperMac 21" color	\$2480	HP 4M	\$1889
Radius 20S	\$2389	QMS Color Script 100	\$5199
NEC16"6FG Color	\$699/2389	QMS 860 11x17	\$3869
Sony 20" 1936	\$1999		
		<b>FREE</b> Microsoft Mouse with purchase of any computer	

**Lawndale**  
800 950-6711 • Fax: (310) 793-0041  
16711 Hawthorne Blvd. • Lawndale, CA 90260

IBM to MAC Connectivity  
Call Carlos Lucero at Lawndale  
We teach you AUTO CAD  
Call Shawn at Lawndale

**Quadra 800**  
20 MB Ram  
425 Quantum HD  
**\$4899**  
Keyboard & Monitor Not Included

**Centris 650**  
8 MB Ram  
80 MB HD  
**\$2999**  
With Keyboard & Monitor

**KING OF HARD DRIVES**

Fujitsu 520	\$799
Quantum 425	\$729
Micropolis 1.1 GB 3.5"	\$1499
Fujitsu 1.2 GB	\$1299
Maxtor 200S	\$399
Toshiba 1.2 GB 3.5"	\$1299

**Encino**  
800 986-9099 • Fax: (818) 986-9171  
16661 Ventura Blvd. • Encino, CA 91436

Fax all your Desktop Publishing, Multimedia & CAD requests  
To John Simon

**Desktop Publishing, Multimedia & CAD**

SuperMac Thunder 24	\$2199
Wacom 6x8 Artz	\$379
Thunder Light	\$1899
Truevision NuVista+ 2mb	\$2395
Radius Video Vision Presentation	\$1999
AGFA Arcus Scanner	\$2989
Microtek IIXE-1200 dpi	\$1099

**COMPAQ**

LITE color 486-25 active display 200M	\$4299
Prolinea DX2-50 MOD 120	\$1899
DP 661 base model	\$2395
Prosignia DX2-66	\$2899

**AST**

Power Exec 486SL-120	\$2769
Power Exec EL 63	\$1589
Power Exec 325 SLC 203w	\$3699

## PowerBook Video

Presentation Video Output For  
PowerBook 140, 145 and 170.

**PB-10 Video Adapter.** Installs easily for use with LCD panels and VGA monitors. **\$399.00.** Other models available.

**PowerR, Inc.**

1606 Dexter Ave. North  
Seattle, WA 98109

(206) 547-8000  
(800) 729-6970

Dealer Inquiries Welcome.  
Visa and MC Accepted.

Applelink: POWERR

## MAC PRINTERS!

**QMS • Newgen • HP**

QMS 860/600dpi	\$4095
QMS ColorScript 210	4345
QMS ColorScript 230	6995
Newgen PS 1200B/1200dpi	4575
Newgen PS 660B/600dpi	3795
Newgen PS 880/800dpi	3275
Newgen PS 400P/400dpi	1695
HP LaserJet 4M/600dpi	Call

Serving your computer needs for over 10 years!

**U-PUBLISH** Call Today!

Tel: (619) 292-8066 Fax: (619) 292-5167

Orders: 1-800-233-3368



International Mac Specialists • 15502 Mosher Avenue Tustin, CA 92680  
Int. (714) 259.7636 24 hour FAX (714) 259.7850 AppleLink®: IMS.TUSTIN

# ORDERS (800) 643.3591

• Unformatted Capacity • Model	• Form Factor	• (ms) • Int.	• Ext.
<b>FUJITSU</b>			
425MB M2623FA	3.5 HH	9	\$839 \$899
520MB M2624FA	3.5 HH	9	\$945 \$1005
1.1GB M2694SA	3.5 HH	8.5	\$1695 \$1760
1.2GB M2266SA	5.25 FH	14.5	\$1395 \$1495
2.0GB M2652SA	5.25 FH	14.5	\$2395 \$2495
2.4GB M2654SA	5.25 FH	14.5	\$2595 \$2695

• Drives have five year warranty

## QUANTUM

42MB ELS42	3.5 1"	19	\$175 \$235
85MB ELS85	3.5 1"	17	\$215 \$275
127MB ELS127	3.5 1"	17	\$289 \$349
170MB ELS170	3.5 1"	17	\$319 \$379
240MB LPS240	3.5 1"	10	\$439 \$499
525MB LPS525	3.5 1"	10	\$939 \$999
700MB PRO700	3.5 HH	10	\$1195 \$1255
1.0GB PRO1050	3.5 HH	10	\$1365 \$1425
1.2GB PRO1225	3.5 HH	10	\$1595 \$1655
80MB Go•Drive	2.5	17	\$325 \$425
120MB Go•Drive	2.5	17	\$439 \$539
160MB Go•Drive	2.5	17	\$519 \$619

• ELS, LPS, PRO drives have two year warranty  
• GO•drives have one year warranty

## SYQUEST

44MB IMS 44MB External			\$389
88MB IMS 88MB External			\$489
2/44 Dual SyQuest 44MB			\$729
2/88 Dual SyQuest 88MB			\$899

• Drives ship with one cartridge  
• Drives have two year warranty

## MAXTOR

120MB 7120	3.5 1"	15	\$265 \$325
207MB 7213	3.5 1"	15	\$385 \$445
330MB LXT-340	3.5 HH	15	\$635 \$695
535MB LXT-535	3.5 HH	12	\$975 \$1035
540MB MXT540SL	3.5 HH	8.5	\$1122 \$1162
1.2GB MXT1240S	3.5 HH	8.5	\$1656 \$1716
1.2GB PO-12S	5.25 FH	13	\$1425 \$1525
1.7GB P1-17S	5.25 FH	13	\$1725 \$1825

• 3.5" drives have one year warranty  
• 5.25" drives have two year warranty

## SEAGATE

1.2GB ST11200N	3.5 HH	10.5	\$1545 \$1605
2.1GB ST42100N	5.25 FH	12.9	\$1945 \$2045
1.6GB ST41600N	5.25 FH	11.5	\$1999 \$2099
2.4GB ST42400N	5.25 FH	11	\$2879 \$2979
3.4GB ST43400N	5.25 FH	11	\$3929 \$4029

• Drives have one year warranty

## MICROPOLIS

660MB 1624	5.25 HH	14.5	\$1269 \$1395
1.0GB 2112	3.5 HH	10	\$1689 \$1749
2.0GB 1924	5.25 FH	10	\$2849 \$2949

• Drives have five year warranty

## SIGMA DESIGNS MONITORS

ColorMax 15  
for PowerBook 160,180 and  
Duo computers

\$799

Power Portrait  
for Mac Plus, Classic, Classic II, SE,  
SE/30 & PowerBook computers

\$649

• Call for information about other Sigma Designs products  
• Power Portrait™ shown.



## EXTERNAL DRIVE HOUSINGS



Full Height \$145

Half Height \$85

• Closed or Open Front Bezel.  
• Includes all necessary cabling &  
"SCSI Specialist" formatting software.  
• 110/220 VAC auto switching power supply.  
• Full Height cabinet will hold two 3.5" or  
5.25" HH drives.

## DAYSTAR

PowerCache	w/FPU
33MHz \$385	\$475
40MHz \$555	\$645
50MHz \$735	\$865
PowerCache Adapter	\$42
FastCache	
Turbo 25/128k	\$259
Turbo 33/128k	\$345
Quadra 700/900	\$249
Quadra 950	\$389
25MHz Turbo 040	\$1109
33MHz Turbo 040	\$1369

## UMAX

Color Scanners	
UC630	Call
UC840	Call
UC1200S	Call
Transparency Adapter	Call

## WAYCOM

Graphics Tablets	
6"x 8" ADB	
w/pressure pen	\$319
6"x 9" Standard	\$479
12"x 12" Standard	\$679
12"x 18" Standard	\$999

## TWINCOM

Modems	
24/96 PowerTwin	
Int. 2400/data. 9600/ send 4800/receive	
fax	\$129
14.4 PowerTwin	
Int. 14.4 data/fax	\$299
• Modems ship w/software and all necessary cabling.	
• UMAX scanners ship w/Adobe PhotoShop.	

## PSI

Modems	
COMstation One	\$139
COMstation Two	\$239
COMstation Four	\$349
COMstation Five	\$419
PowerModem I	\$129
PowerModem II	\$229
PowerModem III	\$319
PowerModem IV	\$379

## POWERBOOK ACCESSORIES

PowerBook Cable		PowerBook Battery	
HDI-30 ~ 50 Centronics	\$39	for 140/145/160/170/180	\$65
Power Pad (keypad)	\$89	PowerBook Memory	(Call)
Battery Charger	\$99		

**TOSHIBA 205MB MK224FB-S 2.5" HARD DRIVE ...\$650**

## IMS MEDIA

MO Cartridge	600MB	5.25	\$99
MO Cartridge	128MB	3.5	\$40
• 512 bytes/sector			
• ISO standard			
SQ-800 Cartridge	88MB	5.25	\$99
SQ-400 Cartridge	44MB	5.25	\$64
• SyQuest cartridges have one year warranty			

## EPSON 128MB MO

AMD-5010	3.5
	\$999
• 46.3ms average access time	
• 38ms average seek time	
• MO drives carry manufacturers warranty	

IMS Hard Drives ship with SCSI Specialist formatting software and all necessary cabling. No surcharge for Visa/Mastercard. Prices and product availability subject to change without notice. Not responsible for typographical errors. Apple, the Apple logo, and Macintosh are registered trademarks of Apple Computer, Inc. All brand names and product names are trademarks or registered trademarks of their respective owners.



## Peripherals

HIGH TECH  
DIRECT1900 S Norfolk St #320  
San Mateo, CA 94403Warehouse prices  
Mail Order convenience

800-777-7058

Intl 415-578-1260 Fax 415-578-1165  
Visa/MC No Surcharge  
15 Day Money Back

**Macintosh - Full Line Available!!! Free DayMaker W/System**

Classic II 4/40.....\$899 II VX 4/80.....\$1780  
LC III 4/80.....\$1299 PowerBook 160,165,165C,180.....CALL  
Centris 610 4/80.....\$1799 LaserWriter-All Models.....CALL  
Centris 650 8/80.....\$2599 StyleWriter II.....\$359

**DayStar**

50 Mhz PowerCache.....\$729  
40 Mhz PowerCache.....\$549  
33 Mhz PowerCache.....\$379

**LAPIS TECHNOLOGY**

ProColorServer 8.....\$329  
ProColorServer 8.16.....\$399  
ProColorServer 24.....\$489

**UMAX Color Scanner**

UC 630.....\$1089  
UC 840.....\$1299

**SHARP**

JX 320.....\$959

**HP - SuperMac - RasterOps**

**OVER 10,000 PRODUCTS AVAILABLE-NEXT DAY AIR!**

## MEMORY/HARD DRIVES

88 MB w/Cartridge \$489  
88 MBC w/Cartridge \$589  
Cartridge \$99

**SYQUEST SPECIAL**

44 MB Removable w/Cartridge \$385  
Cartridge \$64

**SIMMS - Lifetime Warranty**

**SIMMS** 1 MEG X 8 SIMM 80ns \$31  
4 MEG X 8 SIMM 80ns \$125

Quantum 85MB (Internal) \$209  
Quantum 127MB (Internal) \$279  
Quantum 170MB (Internal) \$299  
Quantum 240MB (Internal) \$419  
Quantum 1.2GB (Internal) \$1518  
\*Maxtor 120MB (Internal) \$255 \*Best  
\*Maxtor 210MB (Internal) \$365 \*Best  
External Hard Drive Kit for MAC \$109

**AXONE** 1-800-955-0388  
AXONE Computer Systems, Inc.  
14 West Ave., Wayne, PA 19087  
Tel: (215) 687-9930 Fax: (215) 971-0559

University & Corporate Orders Welcome

## Spectra com

1414e V.32bis/V.42bis 14.4K bps  
Modem & V.17 14.4K bps  
Send/Rec Fax .....\$269.00  
1414iPB Internal PowerBook.....\$289.00  
1496P Pocket V.32bis/V.42bis  
14.4K bps Modem & 9,600  
bps Send/Rec Fax.....\$279.00  
9624e 9,600 S/R Fax2400 Modem...\$99.00  
All Products include Cable & STX Fax and Comm Software  
30 day money back guarantee

Major Credit Cards Accepted  
Dealer inquiries welcome

Call Now!

(408) 270-8070 • Fax (408) 270-0698

**SAMSUNG** Rewritable MO Disks  
5.25" (600/650MB) \$92  
3.5" (128MB) \$37  
100% ISO compatibility

Rewritable MO Drives  
5.25" (600/650MB) \$2599  
3.5" (128MB) \$1299  
For DOS & MAC

CDI OPTICAL  
PRODUCTS GROUP  
Phone (408) 441-6930  
Fax (408) 441-8743

**Tell your source!**

I found it in **MacWEEK**  
**MarketCenter.**

**The Macintosh Link to TV and Video...only \$489!**

Beat the high cost of data display for training, education, sales and marketing. With the Mac DisplayLink, you can display the signal from Macintosh II and Quadra computers onto conventional TV monitors, video projectors...even record to tape. Use regular video or switch to S-Video for even higher quality and picture stability.

Now, with the Mac DisplayLink and Macromedia Action! Mac, you'll have all your presentation needs covered.

**For all the details call: 800-578-8546**

The Mac DisplayLink requires 4\*8, 8\*24, 8\*24GC or compatible video card. Includes all cables. No software needed. Macromedia Action! Mac offer subject to availability. Distributor/dealer inquiries welcome. Write Display Tech, PO Box 6722, Concord, CA 94524 or call (510) 676-9362.

## Pacific Mac

**1-800-King-Mac**

1-800-546-4622

2555 E Chapman Ave. Suite 300 Fullerton, CA 92631

Int'l (714) 447-3598  
Local (714) 447-3599  
Fax (714) 447-6723

QUANTUM			
Capacity	Description	Internal	External
80MB	GO /17MS	\$295	\$395
120MB	GO /17MS	\$385	\$485
42MB	ELS/19MS	\$174	\$234
85MB	ELS/17MS	\$195	\$255
127MB	ELS/17MS	\$265	\$325
170MB	ELS/17MS	\$295	\$355
240MB	LPS/10MS	\$395	\$455
425MB	PRO/10MS	\$877	\$937
525MB	LPS/10MS	\$905	\$965
700MB	PRO/10MS	\$1189	\$1249
1.0GIG	PRO/10MS	\$1335	\$1395
1.2GIG	PRO/10MS	\$1489	\$1549

MICROPOLIS <b>BLOW OUT</b>			
Capacity	Description	Internal	External
1.1GIG*	2112/10MS	\$1559	\$1619
2.0GIG*	1924/10MS	\$2649	\$2749

\* Denotes FREE 2-day shipping (some restrictions apply)

SYQUEST			
Capacity	Description	Internal	External
44MB	SQ555 + SQ400	\$344	\$384
88MB	SQ5110 + SQ800	\$444	\$487
88MB	SQ5110C + SQ800	\$555	\$585
CARTRIDGES SINGLE 10-PACK			
44MB	\$64	\$62	
88MB	\$99	\$96	

HEWLETT PACKARD <b>BLOW OUT</b>		
Capacity	Description	External
2.0GIG*	DAT	\$1319
5.0GIG*	DAT COMP.	\$1548

SEAGATE ELITE <b>BLOW OUT</b>			
Capacity	Description	Internal	External
1.6GIG*	ELITE -1/11.5MS	\$1829	\$1929
2.4GIG*	ELITE -2/11MS	\$2529	\$2629
3.4GIG*	ELITE-3/11MS	\$3420	\$3520

We carry hundreds of products, call us for info.

SUPERMAC	
SuperMatch 21" Two Page Color	\$2525
SuperMatch 20T Multimode	\$2449
SuperMatch 20 Color Monitor	\$1475
SuperMatch 17T Multimode	\$915
21" Platinum Monitor	\$995
Spectrum 24 Series IV Card	\$809
Spectrum 24 PDQ Plus Card	\$1514
VideoSpigot Nubus/Isi/LC	\$368/328/248
ThunderStorm	\$815

FUJITSU			
Capacity	Description	Internal	External
520MB*	M2624FA/9MS	\$945	\$1005
1.2GIG*	M2266/14.5MS	\$1397	\$1497
2.0GIG*	M2652/14.5MS	\$2289	\$2389

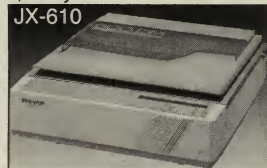
All internal drives come with mounting brackets, cable and Drive7 lite software. All external drives come with a universal power supply, power cable, SCSI cable and Drive7 lite software. All items carry manufacturer's warranty. All prices and information are subject to change without notice. No refunds on freight. All returned items require an RMA number. A 15% restocking fee may apply.

SHARP  
Factory Authorized

**SALES  
SERVICE  
SUPPORT  
NEW & USED**

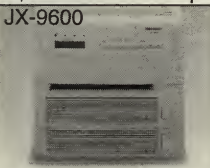
**"NO 1 CAN COMPETE WITH US!"**

\$10,395 w/Software



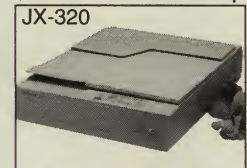
**COMMERCIAL  
SCANNERS**  
20-1200 DPI 1yr. warranty

\$1495 PostScript



**LASER PRINTERS**  
600 DPI w/RISC and  
2yrs of supplies

\$945 w/Photoshop



**SCANNERS**  
JX-320, 450, 600 & 610

- Exclusive Sharp Service Center for 10 years!
- Nation's Best Service & Prices!
- Dealer Inquiries Welcome
- Lease Options Available

- Quick Repair Times
- Longer Warranties (up to 3yrs)

- Factory Trained & Authorized
- Complete Satisfaction



**(503) 284-2525  
(206) 695-8100**

**METRO**  
PROFESSIONAL  
IMAGING SYSTEMS  
PORTLAND, OR

**MacWeek subscribers are active  
mail order buyers.**

**Within the next 12 months:**

- 55% of MacWeek buyers will purchase software by mail order
- 40% of MacWeek buyers will purchase hardware and peripherals by mail order
- 34% of MacWeek buyers will purchase connectivity products by mail order

Call your MacWeek account representative at 800-825-4237 today to find out how you can advertise and get your share of this active market!

Source: MacWeek 1992 Study of Microcomputer Product Ownership and Buying Plans

## Used Equipment

**BUY • SELL • TRADE  
CASH FOR  
YOUR MAC**



**MAD MACS**  
**1-800-756-6227**  
San Diego, California



## Used Equipment

**Mac IIfx to IIfx logic board upgrade.....\$999.**

### Super Deals!!

IIInt Logic board.....\$169.  
SE logic board (w/o ROMS).....149.  
Plus Logic bd (w/o ROMS).....149.  
800k floppy mech.....89.  
CRT and YOKE (Used).....49.  
8-bit video board.....99.  
**Apple Powerbook fax/modem.69.**  
**Personal NT logic board.....249.**  
Apple 40-meg tape back-up.....199.

### Used Systems & Printers

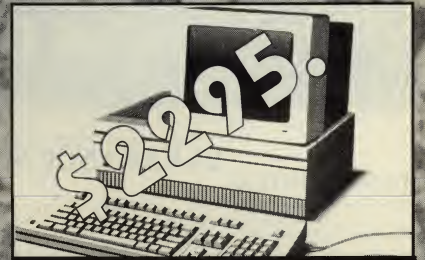
Mac SE 1/20.....\$449.	Mac Portable 2/40.....\$799.
Mac LC 2/0.....599.	Laserwriter IIInt.....989.
Mac II 0/0.....599.	Personal L'writer NT.....799.
Mac IIfx 0/0.....999.	Laserwriter Plus.....699.
Laserwriter LS.....499.	Mac Plus.....329.
Mac IIfx 0/0.....1599.	Apple CDSC Drive.....199.

### New Macs

Centris 650 4/80.....\$2399.  
PowerBook 160 4/40.....2329.  
PowerBook 160 4/80.....2549.  
PowerBook 180 8/120.....3999.

### Upgrades

IIfx to Quadra 700.....\$Call.  
IIfx to Quadra 700.....Call.  
**Mac II to IIfx.....1299.**  
Mac IIfx to IIfx.....699.  
Mac IIfx to IIfx.....799.  
Mac SE to SE-30 logic bd.....799.  
Mac SE FDHD upgrade.....299.  
Personal L'writer SC to NT .....249.  
512kE to Plus.....179.



**Brand New Mac IIfx 4/0**

**We buy Mac parts!!  
Working or Not!!**

**Please FAX your list. (No phone calls please)**

**Exchange Parts!!  
Trade in your old part & save!!**

All equipment is used or demo unless otherwise stated.  
Equipment carries a 120-day warranty. Returns subject to a 15% restocking fee.  
Prices subject to change. Prices represent "2% cash discount" off full price.



# Shreve Systems

1200 Marshall St Shreveport La 71101 FAX 318-424-9771 Tech. 318-424-7987

# 800-227-3971



Since founding Maya Computer four years ago, I've been providing my clients with the expert personal attention and customer service that only a small company can provide. I do nothing but sell new and used Macs and peripherals, so call me here at Maya. We're in new offices in Dobbs Ferry, New York, where we continue to be...  
**Strictly Macintosh, Simply the Best.**  
— Jahan Salehi, President

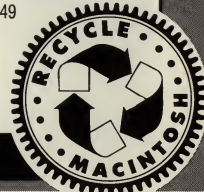
### Computers

Mac Plus w/1 mb., ReNewed .....\$279  
Mac LC w/10 mb., ReNewed .....949  
Mac LC III w/4 mb., 80 HD, New.....1319  
Mac II w/2 mb., ReNewed .....599  
Mac IIfx w/5 mb., 40 HD, ReNewed .....1459  
Mac IIfx w/4 mb., New.....2299  
Centris 650 w/8 mb., 230 HD, New.....3459  
Quadra 950 w/8 mb., 210 HD, New .....4899  
PowerBook 165c w/4 mb., 80 HD, New .....3299  
PowerBook 180 w/4 mb., 120 HD, New .....4399

### Monitors & Video Boards

Apple 13" Color RGB Monitor, ReNewed .....\$299  
Apple 14" Color Trinitron, New .....479  
Seiko 20" Color Trinitron, ReNewed .....1450  
Radius DirectColor GS/C for 8-bit 19" .....299  
Radius PrecisionColor 24XP for 14-17" .....549  
RasterOps 364 Frame Capture.....359  
SuperMac Spectrum 24 for 19".....879

**We Buy Used!**



**800-541-2318**

914-674-1907 • 914-674-6049 fax

# We Buy Macs!

**One machine  
or a whole office**  
Convert your old Macs to cash,  
or trade up to a new computer.  
Call for a quote on your system.

# RIVER

# 800-998-0098

**Fax: 802-496-6596**

RIVER Computer, Inc., Box 1239, Waitsfield, Vermont 05673, 802 496-7650

IDE & SCSI

## used hard drives!

**105 MB**  
internal **\$169!**  
external **\$199!**

seagate 20 MB	internal	\$79	external	\$139
rodime 210MB		\$169		\$259
SQ555 44MB		\$199		\$259
rodime 105MB		\$169		\$199

30 day money-back guarantee • all necessary cables and software included • all external enclosures are new  
caledonian technologies, inc. (407) 750 6828

### MAC RECONDITIONED DRIVES-MONITORS

**ONE YEAR WARRANTY!**

External	32 MB	<b>\$149</b>
	64 MB	<b>\$199</b>
	Full Page	<b>\$239</b>

### REPAIRS:

Monitors • Drives • Data Recovery

MasterCard • COD • VISA

**619-441-6996**

Center Point Technologies  
1466 Pioneer Way, Suite 9 • El Cajon, CA 92020

## THE PRE-OWNED ERA (1985-Present)



The age of carefully managed resources and efficient use of capital. A revolutionary stage in the use and maintenance of technology. A period of innovation in used computer remarketing begun shortly before the turn of the 21st century.

## Pre-Owned Electronics INCORPORATED

Specialists in Used Apple & Macintosh Computers,  
Parts & Exchange Repairs. Call for a Catalog.

**(800)274-5343** INTL: (617) 275-4600  
FAX: (617) 275-4848

ALL PRE-OWNED ELECTRONICS, INC. TERMS AND CONDITIONS APPLY

### SOFT SOLUTIONS

Mac Service Depot • Est. 1983

907 River Road #98, Eugene, OR 97404  
Phone 503/461-1136 • Fax 503/461-2005

### MAC PARTS (New OEM)

Repair & Upgrade Kits  
Mouse Switches, Cables, etc.  
Same Day Shipping

### MAC REPAIRS

Including PowerBooks  
Component (Part) Level  
72 Hour Turnaround  
Free Warranty Shipping

### MAC PEOPLE

Free Estimates • Advice • Referrals  
Larry Pina Repair Books & Software

### WELCOME

Visa • MasterCard • COD's  
International Orders & Institutional PO's

• CALL FOR FREE CATALOG •

### ALLON COMPUTER

### CLEARANCE SALE!!!

#### CPU Special

NEW Mitsubishi 20" Color Monitor. \$1250

#### PRINTERS & SCANNERS

Tektronix IIPxi .....\$2995  
HP Scanjet IIc for Mac.....\$995  
HP 7475A Plotter .....\$295  
HP PaintWriter XL .....\$595  
HP DeskWriter C.....\$395  
New HP SCSI Internal Hard Drives  
677 meg full height (C2451M).....\$995

#### MONITORS

Radius Precision Color 20 .....\$1895  
SuperMac/RasterOps Dual  
Mode Trinitron .....\$1695  
Radius Precision Color 19 .....\$1695  
Radius TPD mono w/card .....\$795

ALL EQUIPMENT SOLD WITH  
90-DAY WARRANTY.

Information: 203/227/6902  
Sales: 800/688.5554 Fax: 203/227.8102

# WANTED-Used Macs!

• We'll pay you cash for your used Mac equipment. Guaranteed top dollar!  
• We also sell refurbished Macs at DISCOUNT with a 1-year warranty.  
• Peripherals too!

**RENTEX INC.,** Boston, MA (800) 545-2313 "Our 11th year!"

Tell Your Source!

Say you saw it in **MacWEEK MarketCenter.**



## Used Equipment

**CRA Systems Inc.**  
300 South 13th St.  
Waco, TX 76701

We Buy and Sell New and Used Systems Any Quantity  
**Call 1-800-375-9000**  
International Sales 817-754-2120 TeleFax 817-754-2345  
Consultants/Dealers 817-754-2131 Corporate and Univ. PO's Welcome

New Macintosh CPU's (Lc, Si, Ci, Fx, Quadra 700 & 900, Powerbook 100, 140, 170)  
Used & Demo Macintosh CPU's (Se, Se30, Portable, II, Cx, X, Ci, Fx)

## CLEARANCE SPECIALS

## LASER PRINTERS

Apple LaserWriter IIxt, Ntx, IIfx, IIfx  
Laserwriter Plus w/New Printer Engine  
Mitsubishi G370-10U Color 300dpi NEW  
w/Freedom of the Press Postscript driver  
NEC, NewGen, QMS & TI  
QMS Colorscript 100-10 Demo  
QMS PS Jet Plus 8ppm Postscript Laser  
Xante Controllers From  
**600 X 600 DPI Postscript Laser**  
AMD 29000 Risc Processor, 7megs, 8ppm From **\$2495**

## SOFTWARE OVERSTOCK

Adobe Type Manager \$54  
DiskFit v.1.5 \$45  
Fourth Dimension v.1 (\$6 upgrade) \$299  
Freehand \$349  
MacDraw II (w/free Pro Upgrade) \$279  
MacProject II \$249  
Mac Write II \$99  
Microsoft Works v.1.10 \$155  
PageMaker 3.02 \$375

## MONITORS

Apple Color & Monochrome Call  
E-Machines Color Page 15" w/8 Bit NEW \$1100  
Mitsubishi 16" 1024 X 768 w/8bit \$1599  
Radius Greyscale & Color Call  
RasterOps Trinitron, 8 & 32bit From \$2999  
Sony 13", 14", 19" Trinitrons Call  
Sony 1908 Industrial Trinitron (New) \$2699  
Sony 19" Trinitron DEMO \$1999  
Supermac 19" Color New & Used From \$1799

## MISC.

FastPath 4 Ethernet Router NEW \$1199  
Howtek Scanmaster w/Trans Opt. NEW \$3999  
HP Scan-Jet 400 dpi 16GS DEMO \$799  
Laserwriter Plus Upgrade Roms NEW \$399  
Wren 1.2 GIG Harddrive \$1849  
Mirus, Agfa Film Recorders From \$2900  
Raster-Ops 24L 24 bit video board NEW \$1599  
Rodime 210 Cobra SCSI \$699  
Mac II w/040 Accelerator \$3499

CALL US FOR ALL YOUR MACINTOSH NEEDS USED OR NEW

Software/  
Business Mgmt.

## Terminal Emulation

## MacEmulate®

Use your Macintosh  
instead of a terminal:

**Wyse**  
**TeleVideo**  
**Hazeltine**  
**ADD S Viewpoint**  
**Data General**

A fast & full featured  
emulator, with a great  
Mac interface!  
**\$199** Discount with 2  
or more copies

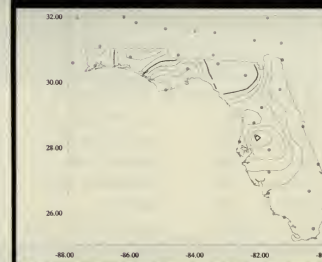
Call for info or to order.  
Credit cards accepted.  
Dealer inquiries invited.



Cornerstone Data Systems  
P.O. Box 6260, Anaheim, CA 92816  
(714) 772-5527 Fax (714) 772-2838

## General

Try **SURFACE III** for reliable data  
analysis in Earth Science, Life Science,  
Archaeology, or Environmental Science!



**SURFACE III \$249**  
Version supporting Faulting  
and Kriging only \$399!  
Kansas Geological Survey  
1930 Constant Ave.  
Lawrence, KS 66047-3726  
**1-800-827-4844**  
Fax (913) 864-5317

## Desktop Publishing

## Color Scanner Calibration

...Specifically for Adobe Photoshop™ Users.

For some companies, calibration is an afterthought, a sideline. At Southwest Software, calibration is our business. We offer more software calibration products on more platforms than any other vendor. In fact, our software technology for calibrating imagesetters, color copiers and color printers is now patented\* Color Encore™ for Scanners is just as precise, and easy to use — it's a Photoshop Acquire plug-in.

Southwest Software — the desktop calibration experts. ♦

**\$249**



**Southwest Software, Inc.**

3435 Greystone Drive ♦ Suite 104 ♦ Austin, Texas 78731

Phone orders: **(512) 345-2493**

Fax orders: **(512) 345-2697**

Plus shipping and handling and  
applicable sales tax. MC, Visa, Amex,  
COD and corporate PO's accepted.

\* U.S. Patent # 5,170,257. Photoshop is a trademark of Adobe Systems, Inc.

## Graphics

**POSTSCRIPT FILE**

**PICT**

T-Script Deluxe converts any Mac or IBM or VAX PS file to TIFF or PICT, up to 2400 dpi. Incl. PS preview, batch processing. Complete PS interpreter. Supports color, AppleTalk accessible. Sys. 7. \$495

**TeleTypesetting**  
311 Harvard St., Brookline, MA 02146  
(617) 734-9700 Fax: (617) 734-3974

## Services/General



- Certified Class 100 Clean Room
- Courteous, Friendly Technicians
- Syquest, Bernoulli and Optical Drives
- Competitive, Reasonable Rates
- Experts in IDE and SCSI Formats
- Macintosh, IBM and UNIX
- Fast Turnaround/Guaranteed Repairs
- We Specialize in Seagate, Conner, Rodime, Quantum and MiniScribe
- We Sell New and Used Drives

**computer** (619)  
**shoppe** **384-4500**

(619) 384-4005 24 Hour Fax  
225 Balsam Street, Ridgecrest, CA 93555

**DATA RECOVERY EXPERTS!**

**FEARLESS**  
Color  
1186 Folsom St.  
San Francisco  
CA 94103

**SHADOW**  
CD-ROM ARCHIVING SERVICE

- Ship us your hard drive, SyQuests or DAT & we will return your data on CD-ROM.
  - Store 640 mb! Regain costly SyQuests & hard disk space.
- A second CD-ROM is provided FREE for the ultimate back-up

Only **\$250** per set

Call 415-431-9020

## USED TECHNOLOGY

Ilfx 5/80 \$2299  
Ilcx 2/0 \$1099  
II 2/40 \$850  
Classic 2/40 \$599  
SE 1/20 (800k) \$499  
Portables 1/40 \$599



ALSO AVAILABLE

QUADRAS, POWERBOOKS, CLASSICS, IIfx, Ilcx,  
LASERWRITERS, STYLEWRITER, MODEMS, MONITORS, VIDEO  
BOARDS, DOS DESKTOPS AND LAPTOPS.....

30 DAY WARRANTY  
FINANCING AVAILABLE  
CALL FOR YOUR BEST PRICE

**1(800) 873-8324**

## CDR Technology

10 years in business  
Over 5,000 units in Stock

External Mac Drives  
1 year warranty

21MB .....\$120

43MB .....\$165

81MB .....\$215

With Cables, Software & Manual  
Other Sizes Available  
Visa/MC/Discover/COD

**Phone: 503-626-7104**

## Software/Bar Coding

For those wanting

## BAR CODES THAT SCAN!

For Barcode Generation

## MacBARCODA

Contains all the vital features  
for safe, quality bar code  
production and is compatible  
with all major page-makeup  
and graphics software.



For Label Printing

## label designer

An easy-to-use, complete Post-  
Script label design & print  
package. Any label size and  
sheet layout including text, bar  
codes, PICT & EPS graphics.



Give us a call. You will find our  
staff both informative and helpful!

Computalabel Inc. 28 Green Street, Newbury MA 01951 Tel 800-289-0993 Fax 508-462-0993

## BAR CODING FOR THE REST OF US

## Bar Code Pro™

The Bar Code Pro™ desk accessory  
creates graphics (EPS or PICT) of the 14  
most common bar codes to place directly  
in your documents. Bar Code Pro™ is an  
ideal, easy-to-use solution for package  
design, labels, libraries, inventory, pub-  
lishing, medical and scientific applications.



"Bar Code Pro™ installs in  
under 60 seconds and takes less  
than 5 minutes to master."

— MacWorld (9/92)

Codes: UPC, EAN, ISSN, ISBN, ITF, 39,  
25, 128, POSTNET/FIM, Codabar

SYNEX 692 10th St B'klyn NY 11215

**(800) 447-9639**

**Fax (718) 768-3997**

**Tell your source!**

I found it in **MacWEEK MarketCenter.**



## General

### Recycle Your SyQuests!

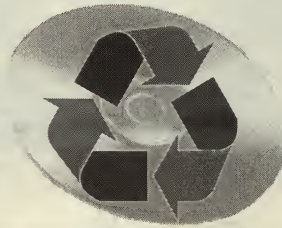
ISOMEDIA is celebrating the anniversary of the Recycle your SyQuests campaign! We can create your PersonalCD for pennies per megabyte.

**A**nnouncing the **Professional CD-ROM Backup!**  
\$250 For: 2 PersonalCD discs, 48 hour turnaround, Free Return Shipping

**Call Toll Free! 1-800-468-3939**

We've moved! Be sure to note our new address.

ISOMEDIA supports virtually all backup mediums. Call for details.  
VISA, MasterCard, Discover, and Purchase Orders accepted upon approval!



**ISOMEDIA**  
Optical Data Storage Specialists

2509 152nd AVE NE Suite A • Redmond, WA 98052  
Fax (206) 869-9437 • Voice (206) 869-5411

## Recovery/Repair

### THE MAC WIZARD U.S.A.

Model	P/Supply	Logic/Analog Board
128/Mac+	\$55	\$140
SE	\$85	\$160/65
SE 30	\$85	\$215/65
MacII FX	\$200	\$250-\$325
13" RGB	Repair	\$125

#### REPAIR WORK ONLY

SIMMS Socket Repair Kit \$24.50  
800k/1.4m Disk Drives \$75/95  
(415)681-3223

**(800)742-4539**

422 Judah St. Suite 103, San Francisco, CA 94122  
Volume Discounts Available

### Accurate Mac Svcs

A fast-growing Macintosh and LaserWriter repair/service company. **Fuser assembly repair and rebuild** with the best turn-around time, and the **best price for top quality work guaranteed!**  
LW2@\$90/LW & LW+@\$75

**(408) 266-2073**

Prices quoted are for normal repairs

## Graphics

Experts in  
Macintosh Slide Imaging

**Nextwave Productions**  
NYC, NY  
NY State Call 212.989.2727 Outside NY State Call 800.445.9002

Matrix Forte® & Chromascript®  
24 hr BBS  
24/72 hr service - \$5/\$3.50  
Rush service available  
Volume discounts  
Color prints & overheads  
High volume slide duplication  
Scanning & production services

AMERICAN EXPRESS VISA MasterCard

**SlideImagers®**

**Overnight**  
**\$4.95**  
Quality Guaranteed

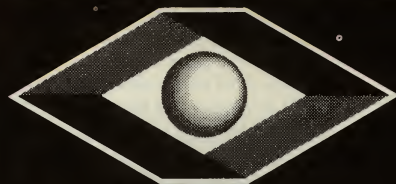
**Digital Output**

- Color Slides & Overheads
- Canon Color Lasers
- Scanning Services

12- hour service standard. Send us your native files by 8 a.m. or Priority Federal Express, and we'll have the finished product back to you by the next morning. **CALL TODAY!**

The BEST Product, Service, Technical Support and Price!  
**(800)232-5411**  
(404)874-6740  
22 7th St • Atlanta, GA 30308

## Recovery/Repair



**HI-TEK**  
SERVICES, INC.

Specializing in the repair of all Macs!

*"Expect the Exceptional"*

We just acquired  
over \$2 million of Mac  
inventory to be sold at Wholesale Prices!!

	REPAIRED	FOR SALE
MOTHERBOARDS	275	450/750
MAC II/IX	275	900/700
MAC II C/CX	300	1400
MAC II FX	150/160	300/650
MAC SE/SE30	180	450
MAC Portable	180	500
MAC II SI Logic Board	180	450
Logic Board Portable (Back Lit)	200	350
MAC LC Logic Board	145	250
Logic Board II GS		

Flat Rate  
Volume Discount  
90 Day Warranty  
3-5 Day Turnaround  
Advance Exchange

**DEPOT SERVICES**  
We also repair PS/2's, Compaq, Radius, Wyse and HP.

32950 ALVARADO-NILES ROAD • UNION CITY, CALIFORNIA 94587  
TOLL FREE: 800-285-3508 • PHONE: (510) 489-8909 • FAX: (510) 489-5908

## Recovery/Repair

MAC HARD DRIVE EXPERTS

**DRIVESAVERS™**

415-883-4232

**WE CAN SAVE IT!**  
★ Data Recovery ★ Drive Repair

**800-WE-FIX-MACS**  
Longer Warranties • 24 Hr Turnaround

128 to Plus Power Supply	\$59
SE & SE/30 Power Supply	\$99
SE & SE/30 Analog Board	\$69
800K/1.4 MB. Disk Drive	\$79/\$99
Mac Plus/SE Logic Board	\$139/175
SE/30/Mac II Logic Board	\$195/225
Mac +/-ADB Mouse Repair	\$29/\$39
Mac IIci/IIx Logic Board	\$375
Mac IIsi/IIcx Logic Board	\$245
Apple 13" Monitor Repair	\$125
LaserWriter PowerBook	Call!

**NOW REPAIRING POWERBOOKS!**

We Also Repair Other Mac Parts  
Dealer Inquiries Are Welcome

**WE MATCH COMPETITIVE PRICES**  
(800) 933-4962 Visa/MC (408) 988-2334  
2306-k Walsh Ave, Santa Clara, CA 95051

## Accessories

**Custom Mouse Pads**  
TEXTURED LEXAN® SURFACE  
Your Choice of Pad & Logo Colors

QUALITY GUARANTEED  
• (612) 665-3284  
• FAX: (612) 665-2604

**MicroStore™**  
**800-962-8885**

Your Name and Logo

**Custom Imprinted Mouse Mats™**  
**1-800-782-8628**  
Peak Products • Cleveland, OH  
Fax: (216) 361-0030

What's the most cost effective way to sell to your lucrative audience?

**MacWEEK MarketCenter**

## How can you afford to reach 95,000 Macintosh Volume Buyers?

With MacWeek MarketCenter. Call your MacWeek MarketCenter account representative at 800-825-4237, for information about size and color options priced to fit your advertising budget.





# Join the CD-ROM Revolution!

Call for your free color catalog

## CD-ROM Drives

All drives come complete and ready to run. Includes driver software and choice of cable. Specify #981 MAC to SCSI or #982 SCSI to SCSI. \$50 off the EDUCORP Shareware CD-ROM 7.0 (2 CD set) with purchase of any drive.

- 1815 Texel DM5024.....\$579  
Higher levels of performance.  
Access Time: 265ms Data Transfer: 300K/sec  
Reliability MTBF: 30,000
- 1824 CD Tech. Porta-Drive T3401.....\$599  
Utilizes the Toshiba XM 3401 mechanism.  
Access Time: 200ms Data Transfer: 327K/sec  
Reliability MTBF: 50,000  
\* 2 FREE multimedia titles *America Alive* and *Multimedia HANDisc*.
- 1969 NEC CDR-37.....\$449  
Access Time: 450ms Data Transfer: 150K/sec  
Reliability MTBF: 10,000
- 1970 NEC CDR-74.....\$639  
Access Time: 280ms Data Transfer: 300K/sec  
Reliability MTBF: 25,000
- L1937 Toshiba XM-3301 w/AGFA Type.....\$539  
Access Time: 325ms Data Transfer: 150K/sec  
Reliability MTBF: 25,000

## CD-ROM Drive Bundles

### Texel DM5024, speakers & headphones, 8 CDs only \$699!

Includes cable, driver software, power supply and 8 CD-ROM titles: • Sherlock Holmes Consulting Detective I • Color It! • Desert Storm • Publish It! • The Orchestra • World Atlas • Multimedia Encyclopedia • EDUCORP CD Sampler You pay only \$699, #D1815

### CD Tech. T3401 Porta Drive, 10 CD-ROM titles, speakers, & headphones just \$749!

Plus cable, driver software, and power supply with 10 CD-ROM titles: • World Atlas • Multimedia Encyclopedia • Publish It! • Color It! • Desert Storm • Sherlock Holmes Consulting Detective I • The Orchestra • EDUCORP CD Sampler • PLUS coupons for 2 FREE multimedia titles: • Multimedia HANDisc • America Alive You pay \$749, #D1824

### NEC Drive Bundles

These new bundles include an NEC CD-ROM drive, external amplified stereo speakers, batteries, driver software, cables and up to 13 CD-ROM titles for as low as \$419!

### Multimedia Gallery \$799

Includes NEC CDR-74 CD-ROM drive with 7 CD-ROM titles: • Grolier Multimedia Encyclopedia • Just Grandma and Me • Great Wonders of the World • Sherlock Holmes Consulting Detective • U.S. Atlas • Color It! • EDUCORP CD Sampler • Includes headphones You pay \$799! (retail value \$1860) #M1970

### CD Express \$419 (Access Time 650ms)

Includes NEC CDR-25 CD-ROM drive with 13 CD-ROM titles: • Publish It! • World Atlas • Lucasfilm Favorites • Total Baseball • Interactive Storytime • The Family Doctor • Great Cities/World v.2 • Aesop's Fables • Manhole • Best of the Bureau • EDUCORP CD Sampler • Plus coupons for the Multimedia Encyclopedia and the Kodak Photo CD Sampler. You pay only \$419! #C1964

## Optional CD-ROM Bundles

You must purchase a CD-ROM drive from EDUCORP to get these prices.

### Classic Collection Plus Bundle \$59.95

Title for bundle Retail Price

#### Complete Works of Shakespeare.....\$29.95

Full text of all of Shakespeare's works including plays, poems, and sonnets. American and Queen's English versions.

#### Complete Works/Sherlock Holmes.....\$29.95

Join the world's greatest consulting detective! Search for a 3-Pipe adventure. The complete "Canon" full text and medical Casebook of Sir Arthur Conan Doyle.

#### Audubon's Birds of America.....\$49.95

Over 3,500 full color lithographs, information on each bird and authentic bird calls.

#### Audubon's Mammals.....\$49.95

The rare and complete 1840 edition of "Quadrupeds of North America." Includes full color plates, information on each mammal and their sounds.

You pay \$59.95, #1600 (retail value \$129)

### Desktop Publishing Bundle

Titles for bundle Retail Price

#### People at Leisure.....\$149.95

Capture the essence of American living with over 200 24-bit color photos of people from all walks of life.

#### Ocean Imagery.....\$99

Bring all your productions to life with these vivid images. Over 100 dynamic 24-bit photos of water and scenic ocean views.

#### Int'l Graphics Library.....\$299.00

200 global images and backgrounds created by Emmy-award winning designers. A fantastic collection saved in 24-bit color.

#### Desktop Publishing 2.0.....\$99.95

Literally filled with EPS images that you cannot do without. Also includes fantastic TIFF images and fonts.

\$199, #1003 (retail value \$647)

## "You asked for it, You got it" Customize Your Own CD-ROM Bundle!

### Combine with the other CD-ROM drive bundles for phenomenal savings.

When you purchase ANY CD-ROM drive from EDUCORP, you now have the option of creating your own CD-ROM drive bundle!

### Choose from 29 CD titles

Start your CD-ROM library with the titles you want. Here's 29 titles on a variety of subjects for you to choose from. Use code listed below PLUS the code next to the CD-ROM titles you want.

- Pick any 3 CD-ROM titles listed for only \$89.95 (code CB3)
- 5 for \$149.95 (code CB5)
- 8 for \$199.95 (code CB8)

\*\*Only 1 of each title per bundle.

### # CD-ROM Title Retail Price

- B1. World Atlas.....\$79.95  
B2. Multimedia Encyclopedia.....\$395.00  
B3. Time Table of History.....\$129.00  
B4. Desert Storm.....\$39.99  
B5. Cosmic Osmo.....\$59.95  
B6. Beethoven's String Quartet #1.....\$466.00  
B7. Multimedia World Fact Book.....\$49.95  
B8. US History.....\$395.00  
B9. The Orient.....\$49.95

- B10. Sherlock Holmes Consult. Det.....\$69.95  
B11. Environmental Data Disc.....\$189.95  
B12. Economic Data Disc.....\$189.95  
B13. US Atlas.....\$79.95  
B14. Lucas Game Pack..... (bundle only)  
B15. Color It!.....\$299.95  
B16. Publish It!.....\$199.95  
B17. SportsROM.....\$69.95  
B18. FM Waves Artware.....\$149.00  
B19. DTPPro.....\$149.00

- B20. Manhole.....\$34.95  
B21. Scenic & Nature III.....\$69.95  
B22. Scenic and Architecture.....\$69.95  
B23. 600 Days to Cocos Island.....\$69.95  
B24. Boston Expo CD.....\$15.00  
B25. Funny: A movie in QuickTime.....\$39.99  
B26. The Orchestra.....\$79.98  
B27. Sports Illustrated- Almanac.....\$59.95  
B28. Word Tales.....\$49.99  
B29. The View From Earth.....\$79.95

## Over 275 CD-ROM Titles in Stock

We'll meet or beat any advertised price on CD-ROM products!

## Stock Photos

Digital stock photography on a variety of subjects without any usage fees!

### 1735 People in Business.....\$129.95

Show the American work force in your presentations, training manuals and advertisements. 200+ photos of men and women at meetings and on the job. Includes a variety of office related equipment. (Saved in 24-bit color.)

### 1736 People at Leisure.....\$129.95

Capture the essence of American living with people from all walks of life. 200+ photos of sporting activities, health, babies, kids, seniors, more. (Saved in 24-bit color.)

### 1595 Swimsuit v.1.....\$199.00

Add sizzle to sports, fitness & travel brochures with these beautiful women. Over 200 24-bit color photos.

### 1698 Donatelli Lingerie v.3.....\$99.00

100 photos.....

### 1686 Kids.....\$129.95

Create playful presentations, teachers manuals, and other publications with 200+ shots of babies and kids playing, growing up, more. (Saved in 24-bit color.)

## QuickTime

### 1701 Digital Video Library.....\$79.95

Royalty-free movie clips ideal for your presentations, advertising mock-ups, storyboards, even marketing! 180 quality video clips of cities, places, sports, locations and miscellaneous, plus backdrops.

### 1659 WraaptureReels One.....\$179.95

Broadcast quality digital video w/animated textures and looping video clips. Use as animated backgrounds, as a source for static backgrounds in presentations.

### 1677 ClipTime v.1.....\$79.95

Add a new dimension to your applications. Grab your audience's interest with any of these 250 royalty-free movie clips.

### 1919 ClipTime v.2.....\$199.00

American Media. American personalities, wildlife, events, national parks and more. 350 movie clips, photos, sounds, stingers.

## Educate

### 2081 Butterflies of the World.....\$59.95

The first volume in the ZooGuides series, it's a complete interactive, multimedia guide to all 15 butterfly families worldwide. Expert narration, over 300 high quality color illustrations, animation, pictures, 50 QuickTime video sequences, plus a full pop-up index reveals the fascinating secrets of these beautiful insects.

### 2078 Animal Alphabet.....\$59.95

Full of hidden surprises and musical interludes, *Animal Alphabet* is an ideal way to let your children explore the world of letters and words. Designed for children ages 3 to 7, it uses children's natural inquisitiveness about animals to help them learn the alphabet. Children and adults alike will be entertained by this interactive multimedia educational CD-ROM.

## Games

### 1611 GameRoom.....\$49.95

### 1908 Battle Chess.....\$59.95

### 1737 Sherlock Holmes Consulting Detective I.....\$49.95

### 2068 Journeyman Project.....\$79.95

### 1339 Cosmic Osmo.....\$49.95

### 1583 Spaceship Warlock.....\$69.95

## Create

### 2079 LOOPS.....\$79.95

100 royalty-free, seamless, original music tracks in a wide range of moods and styles.

### 2080 FACELIFT FONTS v.1.....\$99.95

Anti-aliased screen fonts for screen and video presentations.

### 1653 Wraapture One.....\$95.00

Over 120 seamless tileable textures you can map to 3D objects. Tile to create multimedia and presentation backgrounds. From shrubbery to stars, sunrises to a school of piranha. Each texture comes in multiple resolutions and bit-depths. Saved in PICT and MacRenderMan optimized.

### 1990 Wraapture Two.....\$95.00

130 more seamless and tileable textures.

## EPS Art

### 1857 BackIMPACT! Pro.....\$79.95

### 1856 SlickART Plus.....\$99.95

### 1680 GraphTec Graphic Designs.....\$49.95

### 1408 Design Toolkit.....\$99.95

450 color & b/w EPS editable images. EPS and TIFF images.

## Shareware

### 2067 A Thousand Fonts.....\$39.95

Over 1000 fonts categorized by TrueType, Type 1, Type 3 and Bit-mapped fonts. Every typeface from Klingon to Hebrew, traditional to swirly.

### 1405 7th Wonder.....\$59.95

Over 100 megabytes of the most up-to-date System 7 specific public domain and Shareware software available today. An unbelievable collection of essential tools and utilities that will enhance your Macintosh.

### 1300 EDUCORP Shareware 7.0.....\$199.00

Pick up your resource fork, drop your jaw and take more than a gigabyte out of this 2-CD set featuring EDUCORP's entire collection of Public Domain/Shareware. It's more software than you can digest! Over 20,000+ files on your desktop — education, business, graphics, desk accessories, utilities, sounds, games, more! \$50 off with a CD-ROM drive purchase.

## FREE Catalog!

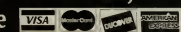
Even if you don't see the CD-ROM title you want in this ad, chances are we have it! EDUCORP stocks the largest selection. Call for your free color catalog. (Foreign customers send \$4 postage & handling).

We'll meet or beat any advertised price on identical CD-ROM products.



# EDUCORP® 1-800-843-9497

Order toll-free in the U.S. and Canada • You'll get access to our Technical Hotline w/any purchase • Prices subject to change without notice • Dealer inquiries welcome



EDUCORP • 7434 Trade Street • San Diego, CA 92121 • Orders: 1-800-843-9497 • Info: 619-536-9999 • FAX: 619-536-2345



# CAREER OPPORTUNITIES

## Career Opportunities Information

For more information about placing an ad call:

**Glenda Campbell Roberts**  
District Sales Manager  
(212) 503-5173

or call

**(800) 288-HIRE**

Send all camera ready artwork to

MacWEEK  
Career Opportunities  
One Park Ave.,  
3rd Floor  
New York, NY 10016

Telecopier  
(212) 503-5002

Ad Closing  
Thursday, 5 PM (EST)  
11 days before  
issue date

## SOFTWARE ENGINEERS

Imagine a company with an enviable track record for producing award-winning, market-leading products. Then imagine yourself as part of the team of top-notch engineers that produced them. Sound good?

We're looking for Software Engineers and Engineering Managers with exceptional skills and experience developing Macintosh system software, working in C++, C and Assembly language. We're especially interested in your relevant experience with commercial Macintosh software development, disk drivers, the Macintosh file system, compression, or localization.

Stac is fast-growing, healthy and publicly held. Our main product (Stacker disk compression software for Windows and DOS) is breaking sales records everywhere. Stacker for Macintosh will be shipping soon, and we're striving for at least the same level of success on that platform. We offer competitive compensation and an excellent benefits package. Best of all, (for engineers) is our small-company culture with big-company access to resources.

We're ideally located in the heart of sunny Southern California, San Diego's North County. We've got the best of everything—weather, beaches, mountains, parks, education, housing, entertainment, culture...and much, much more. San Diego's motto is "America's Finest City"—with good reason! Wouldn't you and your family enjoy living here?

To be considered for one of the many interesting and rewarding opportunities on Stac's engineering team, send your resume and salary history to: **Human Resources Dept. TD/MW, Stac Electronics, 5993 Avenida Encinas, Carlsbad, CA 92008**, or FAX it to **(619) 431-0271**. Stac is an Equal Opportunity Employer. NO PHONE CALLS, PLEASE.

# STAC

The Data Compression Company

## Senior Programmer/Analyst

The College of Veterinary Medicine at Mississippi State University is seeking applicants for a Senior Programmer/Analyst. Duties include maintenance of hospital and academic software packages and assisting college analysts in management and development of other program or college-wide projects. Minimum requirements: B. S. degree in Computer Science or related field and three years programming experience in a database environment or equivalent combination of degrees and experience. Additional desirable qualifications include experience on Macintosh, VAX 780, or Sun systems; Helix, UNIX, Oracle, COSTAR or MUMPS programming; Ethernet/Local-Talk, network management experience. Salary commensurate with experience. Applications accepted until April 23, 1993 or until position is filled. Send resume and three professional references to: Barbara B. Rhoades, Administrative Officer, Drawer V, Mississippi State, MS 39762. MSU is an AA/EEOC Employer.

## IT'S TIME YOU FOUND THE TECHNICAL TALENT YOU NEED.

Need qualified applicants to fill computer jobs? Week after week, enterprising recruiters rely on MacWEEK Career Opportunities to find them. We'll put the country's most experienced computer professionals at your disposal, from **Systems and Communications specialists to Engineering/R&D, Graphics, and Technical Sales & Marketing professionals.** They're waiting to see your ad.

## ADVERTISE IN MacWEEK CAREER OPPORTUNITIES

For more information or to place an ad, call **Glenda Campbell Roberts** at 212-503-5173 or **800-288-HIRE** **MacWEEK**

## Apple Technical Assistance Center

*Our top priority is being responsive to our customers. So when they call, we want to answer with the unparalleled dedication of our best people and greatest resources. We are continuing to build the best Customer Satisfaction organization in the industry. So, in these key positions, we need the very best people who know how to listen and can respond with comprehensive, timely solutions. Help us continue Apple's commitment to customer support by answering this with your resume.*

### Senior Support Engineers

You will provide support to customers of the Apple Technical Answerline via a sophisticated telephone environment and via electronic mail. Services include support for A/UX®, MacX, SNA.ps, DAL®, OCE, AppleTalk® Networks, Macintosh® OS, Macintosh peripherals, and other high level environment/products as determined by our customers' needs. You should have a BA/BS degree and 4-5+ years' technical experience in the above areas, with special focus in UNIX® (A/UX 3.0 preferred). Hands-on technical experience with TCP/IP, AppleTalk, SNA, APPC, X25, or other networking/communication environments preferred. (Dept. SSE 322-MW)

### Telephone Technical Support Engineers

You will resolve technical, and pre/post sales customer questions; provide hardware and software technical support to Apple's service providers and end user customers via telephone and AppleLink. You should have a BA/BS degree and 3-4+ years' experience servicing and supporting microcomputer systems. Technical support and fault isolation skills required. (Dept. TTSE 322-MW)

All positions require excellent written and verbal communication skills; and a real concern for customer satisfaction. Bilingual skills a plus. No relocation assistance is available.

Please send your resume to: Apple Computer, Inc., Human Resources, (insert appropriate code from above, here), MS 198-HRB, 2420 Ridgpoint Drive, Austin, Texas 78754-5288.

**Apple Computer has a corporate commitment to the principle of diversity. In that spirit, we welcome applications from all individuals. Women, minorities, veterans and individuals with disabilities are encouraged to apply.**

©1993 Apple Computer, Inc. Apple, the Apple logo, A/UX, DAL, AppleTalk, Macintosh and "The power to be your best" are registered trademarks of Apple Computer, Inc. All other trademarks belong to their respective corporations.



The power to be your best.®

## Recruiting professionals!

Meet your match every week in the **MacWEEK Career Opportunities** section by making direct contact with over 95,000 top-notch Macintosh professionals. It works for you!

**(800) 288-HIRE**



We're a leading, multi-million dollar developer of quality Macintosh Enhancements, shipping over 25,000 products per month and one of the industry's fastest growing companies. If you are entrepreneurial and eager to join "The Best of The Best," consider these opportunities:

## NATIONAL SALES MANAGER

We seek 8+ years' demonstrated expertise managing a fast-growing, high-volume sales organization, thorough knowledge of the Macintosh market and strong national account management skills, along with a related BA/BS (MBA desirable). Advanced telemarketing management system skills are essential, as you will manage phone support teams.

## DIRECT MARKETING MANAGER

Primary responsibility for qualified individual will be the management of a comprehensive Acquisition/Retention program including all phases of the FOCUS Direct Marketing program. BA (MBA preferred) with four years' experience in all facets of direct mail from creative to response fulfillment required. Should have management experience with customer acquisition, catalog and circulation programs. Macintosh and Unix database experience a strong plus.

**FOCUS** offers a competitive salary, medical benefits, stock options and superb growth potential. Please send resume and salary history to: **FOCUS Enhancements, Inc., Attn: HR-NSDM, 800 West Cummings Park, Suite 4500, Woburn, MA 01801.** An Equal Opportunity Employer

**FOCUS**  
enhancements

A leading photocomposition and electronic publishing company has immediate career opportunities available for individuals with a BS in Computer Science (or related field), effective oral/written communication skills, and the following systems experience:

### SYSTEMS ANALYST

2+ yrs. exp. with PostScript and "C" programming and 1+ yrs. exp. with UNIX and/or DOS/windows req'd. Familiarity with TCP/IP a plus.

### SYSTEMS ANALYST

2+ yrs. exp. with Macintosh and "C" programming req'd. Familiarity with UNIX and LAN adm. a plus.

We offer competitive pay, superior benefits package, and more. For immediate attention, send your resume, including salary history to:

**Bell Atlantic Directory Graphics**  
ATTN: Human Resources  
2500 Monroe Blvd.  
P.O. Box 80050  
Valley Forge, PA 19484-0050  
Equal Opportunity Employer

### Mac Programmer for MacApp/C/C++.

Medical database development in challenging University environment.

Contact:  
Dr. Dooley:  
803-656-5562

### PRINCETON INFORMATION

Leading Consulting  
Company Seeks:

MAC/C PA's with 3 to 5  
years experience required.  
Please fax your resume to:  
212-563-5919 or Contact  
us at: 212-563-5030

### 4D DEVELOPERS

Natural Intelligence, providers of a full range of computer consulting services, has immediate openings for Macintosh developers.

Candidates must have a strong working knowledge of many of the following applications: 4th DIMENSION, SQL, C, Pascal, Mac Toolbox, UNIX and Sybase. If you've got what we want, send a cover letter, resume, and salary requirements to:

Natural Intelligence, Inc.  
2067 Massachusetts Ave.,  
Cambridge, MA 02140  
Fax: (617) 492-7425  
E-Mail: hr@natural.com  
AppleLink: NATURAL  
(Please! No recruiters)

**Natural  
Intelligence**  
Natural Intelligence is an E.O.E.

### 4D Developer

ACUMEN Inc. is looking for a 4D programmer with accounting experience. The company is located in the beautiful north hills of Santa Fe, NM. The atmosphere is casual. Fast growth & incentive program provides increased earning potential. Non-smokers only. Send resume with salary expectations to ACUMEN Inc. 803 Juniper Lane Santa Fe, NM 87501.

**ACUMEN**

## PROGRAMMING

Exciting career opportunities exist for Macintosh Toolbox Programmers using C. MacXperts is an established and rapidly expanding company that offers flexible hours and an excellent compensation package. Send resume to:

**MACXPERTS**

3228-L West Cary Street  
Richmond, Virginia 23221  
Attn: Desiree Giroto.  
Or fax resume to 804-358-3847.

## Macintosh Support Specialist

DDB Needham Worldwide, a major ad agency, is looking for a mature, organized, well-rounded Mac Support Specialist, with 2 to 4 years of experience in a corporate MIS setting. As a highly skilled troubleshooter, you will be part of the team that keeps our 300+ user base running smoothly. Being able to work patiently with a wide variety of users is of paramount importance. Extensive experience is required with Mac OS 6 and 7, Word and Excel. Knowledge and background in Appletalk and Ethernet is a real plus, as is your interest and experience in software training. Experience in higher-end graphics and database software is also helpful.

If you are interested in a challenging position that offers growth and visibility, excellent benefits and a dynamic work environment, respond in confidence to: DDB Needham, 437 Madison Ave., New York, NY 10022. Attention MIS. EOE. No agencies please.

**IT'S TIME YOU  
FOUND THE  
TECHNICAL TALENT  
YOU NEED.**

**ADVERTISE IN  
MacWEEK CAREER  
OPPORTUNITIES**

# No Masquerade



Ever wonder how some recruiters always unmask the most qualified computer talent in Fortune 1000 and technical sites?

The CAREER OPPORTUNITIES NETWORK uncovers the best talent for them. It's a network of two computer newspapers—each recognized by computer professionals as the #1 information source in its field.

**PC WEEK** takes their recruiting message to 230,000 qualified computer-involved prospects with micro, mini, mainframe and networking experience. Consider passalong readers and the number jumps to 780,000.

**MacWEEK**, the only weekly of its type, attracts 95,000 Macintosh specialists. And passalong readership pushes the number to over 300,000.

If you'd like to bring more high-calibre professionals out of hiding, call the CAREER OPPORTUNITIES NETWORK today at **212-503-5173** or **800-288-HIRE**. It's time you discovered who they are.

**CAREER  
OPPORTUNITIES**  
PC WEEK • MacWEEK



## Servers

From Page 1

AppleShare 3.0 on a stock Quadra 950, Apple said. The PDS card provides two SCSI direct memory access (DMA) channels and a secondary cache with up to 512 Kbytes of RAM, while the A/UX operating system delivers multithreaded, multitasking capabilities, including asynchronous I/O. Each user session will be treated as a separate process by the computer, which should cut down the wait before the server responds to user requests.

AppleShare Pro will provide services for 200 concurrent users and handle up to 50 simultaneous user requests. It will be fully compatible with existing System 7 AppleShare client software, the company said.

Prices for the AWS 95 will range from \$7,589 to \$12,929, depending on configuration (see chart).

The other two systems in the new ESD lineup, slated to ship in June, are intended for smaller workgroups. The AWS 80, based on an unmodified Quadra 800, will start at \$6,399. The AWS 60, based on a Centris 610 and designed particularly for the K-12 market, will sell for as little as \$3,079.

Both will run AppleShare 4.0, an improved version of Apple's file and print server software for the Mac operating system. The AWS 60 will offer about twice the performance of AppleShare 3.0.1, while the AWS 80 will triple performance, according to the company.

AppleShare 4.0 will support up to 150 concurrent users, although only

## Apple Workgroup Servers

MODEL	RAM	HARD DISK	DAT	RAM CACHE	PRICE
AWS 60	8 MB	230 MB	No	n/a	\$3,079
AWS 60	8 MB	500 MB	No	n/a	\$4,099
AWS 80	8 MB	500 MB	No	n/a	\$6,399
AWS 80	8 MB	500 MB	Yes	n/a	\$8,219
AWS 80	16 MB	1,000 MB	Yes	n/a	\$9,559
AWS 80 + CD	16 MB	1,000 MB	Yes	n/a	\$9,959
AWS 95	16 MB	230 MB	No	128 K	\$7,589
AWS 95	16 MB	500 MB	Yes	256 K	\$10,039
AWS 95	32 MB	1,000 MB	Yes	512 K	\$12,839
AWS 95	32 MB	230 & 500 MB	Yes	256 K	\$11,319
AWS 95	48 MB	230 & 1,000 MB	Yes	512 K	\$12,929

30 can be active at any one time, Apple said. Because AppleShare 4.0 runs only on '040-based Macs, Apple will continue to offer but not further enhance Version 3.0, which is priced at \$1,199.

The top-of-the-line AWS 95 is intended as a platform for third-party services as well. Among them:

► **Retrospect.** Apple will bundle a four-user pack of Retrospect Remote A/UX, a new Unix version of Dantz Development Corp.'s backup application, with the high-end server.

► **Oracle.** Users will be able to run a special version of Oracle Corp.'s Oracle7 database in lieu of AppleShare Pro on the AWS 95.

Oracle said the software should be available in May. Pricing isn't final but should be comparable to the \$625-per-user price it charges for other desktop Unix versions.

► **4D.** ACI US Inc. of Cupertino, Calif., reportedly will offer a version of its 4D Server for the Apple servers. ACI US said the new version of 4D Server will ship this summer. Upgrades will be free.

► **Groupware.** Apple said Meeting Maker from ON Technology Inc. of Cambridge, Mass., and QuickMail 2.6 from CE Software Inc. of West Des Moines, Iowa, are compatible with the new servers.

Current Quadra 900 and 950 owners will be able to purchase an AWS 95 PDS card upgrade for \$2,499. A kit consisting of the PDS card, a Hewlett-Packard Co. digital audio tape drive with on-board compression and Retrospect Remote will sell for \$4,399.

AppleShare Pro will be available separately for \$2,399 in April. AppleShare 4.0 will sell separately for \$1,899.

Server options include a DAT drive based on an HP mechanism with on-board compression. □

## Market

From Page 1

new machines, analysts said.

"This is a very reasonable first effort in the server arena — it's a first pass that satisfies the installed base," said Charles Wolf, an analyst with First Boston Corp. in New York. "I anticipate that the next step will address the need for more effective support for cross-platform environments."

Kimball Brown, vice president of microsystems hardware for InfoCorp, a market research company in Santa Clara, Calif., said: "There is an installed base crying for a Mac server, especially in shops that are 75 percent or more Macintosh. From the PC side, however, this is an inferior system."

At press briefings last week, Apple did not lay claim to the cross-platform network market, saying that it would provide more DOS and Windows support in future products. For now, the company will support IBM PCs and compatibles with an Apple-labeled version of Farallon Computing Inc.'s PhoneNET PC, which will be marketed as AppleTalk Connection for DOS and Windows.

But that may not be enough for heterogeneous networks, said William Green, network manager for the University of Texas at Austin. "AppleTalk is not really scalable," he said. "These servers will be useful in some situations, but it's certainly not an enterprise solution."

InfoCorp's Brown said that without robust support for PCs and compatibles, "you'd have to be an idiot to buy this stuff instead of a second- or third-tier Intel machine with [Novell Inc.'s] NetWare."

Apple's pricing also drew criticism from Brown. "When Apple faced Compaq [Computer Corp.] and IBM, which were charging ridiculous prices two years ago, it might have had a pretty good argument. Today [the servers] just

don't match up to the cost of a PC server."

Joe Prinz, network manager at Racine, Wis.-based Design North, said his company switched to NetWare several years ago. "With NetWare, the server gets completely excellent performance, and it's reliable," he said. "I can't see any reason to go [back to AppleShare]." He said he is envious of Mac managers only because of the AppleShare interface's ease of use.

Users and analysts also noted the absence of DOS and Windows clients for Dantz Development Corp.'s Retrospect Remote, the backup application bundled with the AWS 95.

Doug McLean, ESD product manager for network servers and services, last week explained Apple's performance goal for the new servers: "If users believe the server is responding to their request in three seconds, that's acceptable."

But an analyst who attended an advance briefing last month called that "the strangest network metric I've ever heard. Three seconds can be a lifetime," he said.

The servers foreshadow new services that will be rolled out in the "client-client-server environment" of coming years, analysts said. These networks, linking AWS servers and desktop Macs to remote PowerBooks and personal digital assistants (PDAs), will depend on filtering and store-and-forward messaging to help users manage the flow of information.

AppleSearch, the company's upcoming server-based full-text search application, will eventually distribute information to Newtons as well as Macintoshes, Apple said.

"[AppleSearch] opens up the concept of the PDA as a network terminal," InfoCorp's Brown said. "The client-client-server network will help people deal with information overload. That makes people incredibly more productive." □

## Cameras

From Page 1

The Fuji device costs about \$1,840, and compatible PCMCIA cards cost about \$540 each. It requires a \$1,580 reader to transfer files to a CPU.

► **Venus.** The lower-end camera, sources said, will retail for about \$500 and support a resolution of about 320 lines. Venus will be able to store about 20 images in static RAM and will connect to the user's CPU via a serial interface.

Apple reportedly is also working on a high-definition digital camera for release in 1994. According to sources, the company will base this product on technology from Canon U.S.A. Inc. of Lake Success, N.Y.

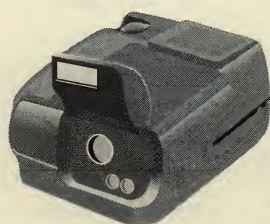
Canon this month unveiled a prototype high-definition digital device that functions like a single-lens reflex camera and works with Canon's standard lenses and accessories. The camera, which runs on a NiCad battery, includes a 1.3 million pixel imaging sensor and stores images in a 120-Mbyte hard disk memory pack, or

40-Mbyte and 80-Mbyte IC memory packs that can be connected to a CPU via a SCSI interface. Its electronic shutter speeds range from 0.125 to 0.00025 seconds. Canon refused to comment on any marketing plans for the camera.

Several companies have introduced portable digital cameras over the past three years, and observers said the market has a lot of potential.

Photographer Kurt Foss, a writer and consultant based in Madison, Wis., said, "Businesses have been using low-end digital cameras for some time for training and education, databases, and image management." For example, he said, a hospital could use them as part of a patient identification system.

"There are lots of applications where you need to capture images quickly and transmit them quickly," Foss said. "People who have put down the state of digital cameras so far have been thinking about print applications, and I think we're seeing that these nonprint applications are very viable." □



## Radius Rocket makes jump to Mac IIx

Update supports 7.1, sound in QuickTime

By Neil McManus

San Jose, Calif. — Macintosh IIx users can now add Radius Rocket 68040 accelerators, thanks to a free RocketWare software upgrade shipping this week.

In addition to IIx support, RocketWare 1.5 fixes other bugs. Rockets can now play back QuickTime movies with sound, run more reliably with System 7.1, and support Apple Ethernet cards and others that use

the A/ROSE (Apple Real-time Operating System Executive) system extension.

RocketWare 1.5, which is bundled with all Rockets, now incorporates software licensed from Apple that reportedly lets the Rocket copy the contents of the Mac's ROM to the cards' on-board RAM, enhancing performance. It also improves the speed of math operations with the Rocket 33.

The upgrade also lets Rocket users add compatible 2- and 4-Mbyte SIMM modules. Some third-party composite SIMMs are still incompatible with Rocket

cards because of space limitations.

In addition, Radius Inc. reduced the price of its Rocket 25i to \$1,199 from \$1,499. This accelerator uses a 25-MHz 68LC040 processor to speed NuBus-based Macs.

The Rocket 33, based on a 33-MHz 68040, remains priced at \$2,499.

RocketShare, a \$499 package that lets each accelerator card act as an autonomous Mac that can run programs independently of the host Mac, can be added to all Rockets.

Radius Inc. is at 1710 Fortune Drive, San Jose, Calif. 95131. Phone (408) 434-1010; fax (408) 434-9575. □



## Star Trek

From Page 1

The Apple software reportedly sits on top of an upcoming release of DR DOS, an MS-DOS alternative now owned by Novell Inc. Some observers have speculated that Novell and Apple may be hoping to offer DR DOS and the Mac-interface software as a client to server-based applications running under Unix, Novell's recently released Unix implementation. Together, they said, the products



## SONAR IMAGE The Professional Retriever That's Paper Trained.

For some people document imaging means scanning an original document, saving it as a picture and then manually adding the keywords used to look up the picture. That may reduce the paper, but it sure doesn't eliminate much work. That's why we created Sonar Image, the professional retriever that lets you work with the actual words in your documents, not just pictures of pages.

Sonar Image scans pages and then the computer handles the real work. Using Optical Character Recognition we "read" your documents into text that can be searched using any word or phrase.

Sonar Image also saves a high resolution replica of your document so accompanying graphics and handwriting are retained. And because Sonar Image uses true professional text retrieval technology, you can search documents using phonetic sound-alikes, synonyms, proximity, Booleans and more at speeds exceeding 10,000 pages per second.

Call or fax for a brochure explaining Sonar Image along with information on our family of products for professional text retrieval and index generation.

**VIRGINIA SYSTEMS**

**804-739-3200**

FAX (804) 739-8376

could be positioned as an alternative to Microsoft Windows NT.

Most of the work involved in the translation has been completed, according to sources close to the new group. A major step still to be taken is the native implementation of AppleTalk on the 486. While the software protocol itself is portable, assumptions regarding available connectivity hardware that can safely be made about a Mac logic board cannot be made about a PC, and this has slowed development, sources said.

Applications reportedly will have to be recompiled to run on Star Trek.

Paul Johnson, an analyst with First Boston Corp. in New York, said, "DR DOS alone wasn't a strong contender against Windows, but a combination of DR DOS and a Mac Finder and interface would be a very viable alternative to Windows, especially in light of Microsoft's FTC (Federal Trade Commission) problems about OEM bundling deals."

But Pieter Hartsook, editor of The Hartsook Letter in Alameda, Calif., said he is incredulous that Apple is at work on something such as Star Trek when the company must dedicate much of its resources to implementing the Mac OS on the PowerPC. "If Apple had a bunch of engineers sitting around with nothing better to do, this would be a good experiment," he said. "But it sounds like a waste of time to me." □

## Illustrator

From Page 1

from the intersecting areas of two overlapping objects. Other Pathfinder filters include tools for combining, dividing and cropping objects.

Other plug-in filters make it possible to blend, mix and invert colors; draw complex shapes, such as stars and spirals; smooth and distort paths; and add drop shadows and calligraphy styles to paths.

► **Layers and custom views.** Version 5.0 will let users create, name and work in unlimited layers via a floating palette. Objects can be moved from layer to layer.

The new version will also let users set up and save custom views of a document, including the zoom level and layer setting. Users will be able to simultaneously view a portion of an image in rendered mode and another section in wireframe mode.

► **Floating palettes.** In addition to the Layers floating palette, Illustrator 5.0 adds floating Paint Style and Character palettes.

With the Paint Style palette, users will be able to quickly create, edit and save frequently used colors according to CMYK (cyan, magenta, yellow, black) values. In the current version, users must edit colors in a dialog box.

The Paint Style palette also includes three preset gradient fills that users can add to objects just as they would a color or pattern. Users will also be able to create new gradients by specifying beginning-, middle- and end-colors, and the angle of the blend. Illustrator 5.0 also automatically optimizes the blends for the user's output device, Adobe said.

The character palette will let users select typefaces, sizes and leading. The font name box offers clairvoyance, allowing users to type "He" to access Helvetica.

► **Apple events.** Users will be able to double-click on an imported image, and Illustrator 5.0 automatically will launch the originating application via Apple events. Changes

## Rae builds new PIM on object architecture

Cupertino, Calif. — Recent start-up Rae Technology Inc. last week officially announced its existence and unveiled information about its proprietary architecture for creating information-management applications with sophisticated navigational links.

The object-oriented architecture incorporates a free-form data object manager, linking and navigation tools, and an assistance feature that helps users make connections between records (see MacWEEK, March 1).

Rae said it will ship its first commercial application by the end of the second quarter. The as-yet-unnamed program, aimed primarily at PowerBook users, will include contact-management, scheduling and note-taking capabilities, as well as the features provided by the underlying architecture. Prices will be competitive with other business applications, according to Rae.

Rae Technology, based here, was founded last September by a team of former Apple, Macromedia Inc. and TriTech Systems employees. □

made to the image in that application will be reflected in the Illustrator document.

► **Editing in preview.** Illustrator 5.0 will let users edit images in rendered mode. The current version requires users to return to the wireframe mode for editing.

Other new features include multiple levels of undo, interruptible redraw, automatic hyphenation, support for pressure-sensitive brushes and tablets, a calligraphic pen tool, and eyedropper and paint-bucket tools. The program will also ship with 40 Adobe Type 1 fonts.

"The best parts about the upgrade are the timesaving devices, like the custom color palette," said John Bee of The John Bee Show, an advertising illustration company in Irvine, Calif. "You don't have to use your menus all the time, and you can have little palettes all over the place. It's going to change the way I look at my illustrations, and it's going to expand the things I can offer to my clients."

"My clients come in and ask, 'Can you do a gradient fill?' I used to say, 'Yeah, but it'll take me all day.' Now I'll be going, 'Sure. No problem. Piece of cake,'" Bee said.

Upgrades will be available on floppies or as a CD-ROM that includes Adobe Separator, Type On Call, third-party clip art and QuickTime movies showing how to use Illustrator's new features.

Disk upgrades will be free to users who purchased Illustrator 3.2 after March 1; these users can buy the CD-ROM upgrade for \$99.

Other registered users can upgrade to the disk version of Illustrator 5.0 for \$149 through Aug. 31; the upgrade price will then rise to \$199. The CD-ROM upgrade will be \$199 through Aug. 31 and \$249 thereafter.

Adobe Systems Inc. is at 1585 Charleston Road, P.O. Box 7900, Mountain View, Calif. 94039-7900. Phone (415) 961-4400 or (800) 344-3385; fax (415) 961-3769. □

## Advertiser index

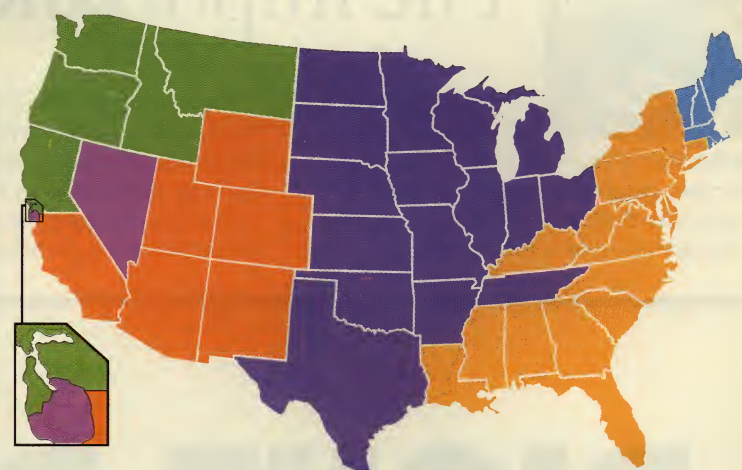
Airbourne Computer Tech.....	76
Apple Computer .....	47
APS .....	77-79
Asanté .....	17
AT&T .....	29
Axon .....	59
Battery Technology .....	58
Boxlight .....	59
ClubMac .....	80-81
Compatible Systems .....	31
Cypress Research .....	58
DataViz .....	13
Datawatch .....	14
Dayna Communications .....	19
DayStar .....	116
DCA .....	11
Deneba Systems .....	5
Digital Eclipse Software .....	59
Educorp .....	108
Farallon .....	7
Focus .....	15
Graphsoft .....	27
Hardware That Fits .....	66-67
International Mac Specialists .....	103
Kensington Micro .....	26
La Cie .....	20-21, 68-69
Mac & More .....	70-71
Mac & PC .....	72-73
Mac Center .....	65
Mac Consulting Network .....	48
Mac Outlet .....	90
Mac Software Registry .....	59
Mac Xtra .....	97
MacDirect .....	61-63
MacNews .....	82
Mannesman Tally .....	57
Mass Microsystems .....	52
Memory Direct .....	96
Memory Plus .....	94
Micro Mac Technology .....	93
NEC Technology .....	8-9
ON Technology .....	114
Peripheral Outlet .....	95
Pilot Technologies .....	58
PSI Integration .....	44
Radius .....	25
RasterOps .....	115
Relax Technology .....	100-101
Softek Design .....	58
Sonnet Technologies .....	59
Spin Peripherals .....	74-75
SuperMac .....	23
Syex .....	84-85
Synergy Software .....	59
Technology Works .....	2, 91
The LLB Company .....	86-89
Third Wave Computing .....	64
USA Flex .....	83
Virginia Systems .....	112
Ziff Desktop .....	42-43
Ziff Institute .....	55
Ziff Labs .....	34-35



## Products mentioned in this issue

ACCESSORIES & ERGONOMICS		NETWORKS		SCANNERS & OCR	
<b>Radiant</b> CommonSense EMF	16	<b>Apple</b> AppleSearch	4	<b>Leaf</b> Leafscan 45	22
<b>Stratos</b> SIMM Remover	10	<b>Apple</b> AppleShare Pro, AppleShare 4.0	1	<b>Microtek</b> ScanMaker 45t	22
CD-ROMS				SOUND & MUSIC	
<b>Digital Zone</b> Kodak Photo CD-ROMs	24	<b>Apple</b> AppleTalk Connection, AppleTalk Administration	3	<b>Digidesign</b> Pro Tools 2.0, SampleCell II	24
COMPUTERS & SYSTEM SOFTWARE				STORAGE	
<b>Apple</b> 32-bit System Enabler	56	<b>Dantz</b> Retrospect Remote A/UX	1	<b>Analog &amp; Digital</b> One For All digital-cassette backup system	14
<b>Apple</b> AWS 95, 80 and 60	1	<b>Dayna</b> DaynaPORT TRX, 10BASE T DaynaPORT TRX-T	18	<b>ClubMac</b> Sharp JY-750	10
<b>Apple</b> DocViewer	4	<b>DEC</b> Pathworks for Macintosh 1.2	16	<b>Mass Micro</b> DataPak 105	10
<b>Apple</b> Macintosh Quadra 700 & 950, IIfx	4	<b>Hewlett-Packard</b> HFBR-5104	18	<b>NEC</b> MultiSpin, InterSect CDR-84 and CDR-37	12
<b>Apple</b> Newton	32	<b>Retix</b> QuickMail Gateway to X.400	18	<b>Paralan</b> Parallel-SD10	10
<b>Apple</b> PowerPC	36, 37, 39, 40	NUMERIC TOOLS & CHARTING		<b>Toshiba</b> Photo CD upgrade for TXM3301 CD-ROM	12
<b>Apple</b> Star Trek	1	<b>Informix</b> Wingz 2.0	6	<b>Transoft</b> Transoft SCSI-Net	10
<b>Microsoft</b> Windows	1	ORGANIZATIONAL TOOLS		SYSTEM ENHANCEMENTS	
DATABASES		<b>IdeaFisher</b> IdeaFisher 2.0	12	<b>APC</b> Smart-UPS series, Back-UPS series, SNMP adaptor	54
<b>ACI US</b> 4D Server	1	POWERBOOK UTILITIES & ACCESSORIES		<b>Applied Engineering</b> TransWarp 4300 family	6
<b>Blyth</b> Omnis 7 1.2	16	<b>Applied Engineering</b> AErport system	18	<b>EFI</b> LanGarde series	54
<b>Brio</b> DataPrism	3	PRINTERS & PRINTING TOOLS		<b>Liebert</b> AccuPower series, AccuPower Gold series	54
<b>Objective</b> SpreadBase 1.1	3	<b>Apple</b> LaserWriter Pro 600, 630, LaserWriter IIfx & IIfx	45	<b>Radius</b> RocketWare 1.5, Rocket 68040, Rocket 25i	1
<b>Oracle</b> Oracle7	1	<b>Apple</b> LaserWriter Select 310	4	<b>Tripp</b> On-line UPS series, standby UPS systems, Omni series	54
GRAPHICS HARDWARE		<b>Compaq</b> Pagemarq	14	TELECOMMUNICATIONS	
<b>Apple</b> Venus and Mars digital cameras	1	<b>Compumation</b> RipServer	22	<b>CE</b> QuickMail 2.6	16
<b>Dycam</b> Dycam Model 4	22	<b>DEC</b> DEClaser 1152	4	UTILITIES	
<b>VideoBits</b> FlashTracer	22	<b>Hewlett-Packard</b> LaserJet 4M	45	<b>Connectix</b> MODE32, Enabler Patch	56
<b>Wacom</b> ArtZ	50	<b>LaserMaster</b> Unity 1000	45	<b>HSC</b> Kai's Power Tools	24
<b>Wacom</b> SD tablets	24	<b>TI</b> microWriter, microLaser series	4	<b>Insignia</b> SoftPC	40
GRAPHICS SOFTWARE		<b>Xante</b> Accel-a-Writer	10, 45	WORD PROCESSING & DOCUMENT TOOLS	
<b>Adobe</b> Photoshop 2.5	45	PROGRAMMING TOOLS		<b>Blueridge</b> Optix WorkFlow	6
<b>Aldus</b> Fetch 10-user pack	24	<b>Absoft</b> MacFortran II 3.2	14	<b>Claris</b> MacWrite Pro	4
<b>Excalibur</b> PixTel/EFS 3.0	6	<b>EchoLogic</b> FlashPort	39	<b>Que</b> RightWriter 5	12
<b>Torque</b> Torqueware	22	<b>Informix</b> HyperScript Tools	6	<b>WordPerfect</b> WordPerfect for the Mac	4
MULTIMEDIA		<b>Language Systems</b> Pascal compiler for PowerPC	39		
<b>Magic Teleprompting</b> MagicScroll 2.0	12	<b>MicroAPL</b> assembly-language translation	40		
<b>VideoLogic</b> DVA-4000	24	<b>Sierra</b> p2c	40		
		<b>Tenon</b> MachTen Personal 2.1 & MachTen Professional 2.1vm	16		
		<b>XVT</b> XVT-Design++	12		

## MacWEEK sales offices



## MacWEEK

## DISPLAY ADS

Northwest\*

New England\*\*\*

## SHOWCASE ADS

## Becky Bacon

Account Executive (Northwest, Southwest, Bay Area and Nevada)  
(415) 243-3542

## Michele Imfeld

Account Executive (Midwest, Mid-Atlantic and Southeast, New England)  
(415) 243-3563

MARKETCENTER  
(800) 825-4ADSCAREER  
OPPORTUNITIES  
(800) 288-HIRE

## Matt Sweeney

District Sales Manager  
(415) 243-3545

## André Lengyel

Account Executive  
(415) 243-3565

Midwest\*\*

## Thomas J. Lutzke

District Sales Manager  
(312) 346-2600

## C. Wesley Walton

Account Executive  
(415) 243-3525

Bay Area and Nevada

## Peter Longo

Western Advertising Director  
(415) 243-3590

## Sam Faillace

District Sales Representative  
(415) 243-3535

## Karl Elken

District Sales Representative  
(617) 393-3060

## Jo-Ann Sturtridge

Account Executive  
(415) 243-3575

Mid-Atlantic and Southeast

## Cynthia Ramsey

Eastern Advertising Director  
(212) 503-4432

## Jo-Ann Sturtridge

Account Executive  
(415) 243-3575

Southwest\*\*\*\*

## Sara Culley

District Sales Manager  
(213) 351-1832

## Lauren Goldstein

Account Executive  
(415) 243-3511

\* Includes San Francisco, Alaska and Alberta and British Columbia, Canada

\*\* Includes Manitoba and Ontario, Canada

\*\*\* Includes New Brunswick, Newfoundland, Prince Edward Island and Quebec, Canada

\*\*\*\* Includes Hawaii

## Looking ahead



Issue date	Special section Product Watch	Close for Display ads, MarketCenter, Career Opportunities	Close for Ad Showcase
April 5	Electronic mail	March 25	March 23
April 12	<b>GA Spec. Rpt.</b> Video	April 1	March 30
April 19	Graphics hardware	April 8	April 6
April 26	<b>Printers</b> Monitors	April 15	April 13
May 3	Networking	April 22	April 20
May 10	Programming	April 29	April 27
May 17	<b>GW Spec. Rpt.</b> Sound	May 6	May 4
May 24	<b>MacWEEK 200</b> CD-ROM	May 13	May 11





In the spring, a young Knife's fancy lightly turns. And who could blame a young Knife for that, given the rather unfortunately dramatic turn that events, including the weather, took during winter's waning days.

The nice thing about doing a nice turn is that you often gain a new perspective. In the Knife's case, it's a perspective on speed. Even before the advent of today's often bloated applications, the Knife has always believed that the fastest Mac is the best Mac. And

apparently the wizards working on the first production incarnation of the PowerPC chip are of the same mind. They've not been shy to boast that the PowerPC 601 will feature some impressive clock speeds: one version at 50 MHz and another at 66 MHz.

# The importance of being speedy

But the Knife's trusty sources now say that the next round of pre-production PowerPC silicon may yield even more impressive figures. The engineers are hoping that the performance range will begin at 66 MHz and top out at a much higher figure. If this turns out to be the case, the first RISC Macs could be considerably faster than expected, even in emulation mode.

This high level of performance also puts in an interesting new light Apple's stated goal of a PowerPC-based Mac capable of running off-the-shelf Mac applications at Quadra speeds and priced at less than \$2,000. Perceptive observers have been quick to point out that the Centris 610 almost fills that order already.

**capitalization optional.** Apple will be jockeying with other companies for your attention at next week's intermedia show in San Francisco. Among the many exciting and wondrous technological marvels on display will be a configuration bundle that Apple is calling a video-production workstation. Designed to promote multimedia CD-ROM development, the workstation will be based on a Centris 650 and include a Radius Video-Vision plus DiVA's VideoShop 2.0 and Macromedia's MacroMind Director. This is only the first in a series of product bundles that Apple is rumored to have planned.

Attentive readers will remember that Radius VideoVision originally was developed at Apple as Touchstone, then sold to Radius. Now it's to make an appearance both in this bundle and in the upcoming Cyclone multimedia Macs.

**No Mac is a laurel.** If you think Apple's roaring unit-sales growth means the company can rest on its achievements, then you probably believe a lot the other hogwash, too. The truth is that the struggle for success is eternal, no matter how many units you moved last month or how many TV commercials your PowerBooks appear in. Take large accounts. Apple has won its share over the past couple of years, but if the Knife's sources are telling the truth, it's lost a few lately, too. For now we'll lay the loss of these accounts at the feet of the current downsizing craze and assume that Apple's ace corporate sales force is already hard at work re-establishing the famous Mac advantage where it really counts.

Along the same dark vein, the faint of heart may be disturbed by the news of the departure of two high-profile executives from the PowerBook group. The Knife's faith is unwavering, however, as it's truly difficult to imagine Dell Computer developing a product innovative enough to mount a credible challenge to Apple's current dominance in the laptop field. Cheap enough, maybe, but not innovative enough. And Global Village historically works in tandem with Apple.

On the other hand, it does seem lately that the executive suites of most of the fledgling pen-based computing companies are populated mainly by alumni of Apple USA. Does that say more about the future of pen-based computing or the quality of the work experience at Apple? □

*If you're thinking of asking for a MacWEEK mug, think again. If you're thinking of earning one, start at (415) 243-3544, fax (415) 243-3650, MCI (MactheKnife), Internet (mac\_the\_knife@macweek.ziff.com), AppleLink (MacWEEK) or CompuServe/Mac.*

# RIGHT PEOPLE. RIGHT PLACE. RIGHT TIME.



Precision Scheduling for Groups

**Call now for a free demo disk.  
1-800-548-8871**

**ON**  
Technology

155 Second St. Cambridge, MA 02141 FAX 617-876-0391





MoviePak  
presents

# THE EDITING ACES

Part of the crew of the Editing Aces Suite is the Video Expander II that offers *high quality output and full genlock capabilities* in either NTSC or PAL.

The Editing Aces Suite really takes off with Adobe Premiere™ 2.0, a \$695 value, and MediaGrabber video capture software.



RasterOps invented video on the Mac® and Apple® used it to get QuickTime® off the ground. So call us today to become a QuickTime Editing Ace.

CALL TO BECOME  
**1-800-SAY-COLOR**  
AN EDITING ACE

To get in  
on the action or  
to order your free 13"x 24"  
Editing Aces poster, call RasterOps  
at 1.800.SAY.COLOR.

Featuring

## Full motion Full screen

NOW SHOWING IN 24-BIT TRUE COLOR  
ALL WITH 16-BIT, CD QUALITY SOUND (with MediaTime)  
*Only by RasterOps*



The Editing Aces Suite features MoviePak, the RasterOps® solution for full-motion digital video recording, full-screen playback, and print-to-tape capabilities. All in a single slot solution for any Macintosh® from the Ilci to the Quadra®. MoviePak even offers the *widest range of compression* in the industry.

The suite also includes Media-Time, with 24-bit real-time digital video and graphics display, and 16-bit CD quality sound - a RasterOps exclusive.

## RASTEROPS®

THE ART & SCIENCE OF COLOR™

2500 WALSH AVE., SANTA CLARA, CA 95051 FAX : 408.562.4065

©1993 RasterOps Corporation. Adobe Premiere is a trademark of Adobe Systems Incorporated which may be registered in certain jurisdictions. Adobe Premiere front panel is the copyrighted trade dress of Adobe Systems Incorporated.  
©1993 Adobe Systems Incorporated. All rights reserved. All other brand and product names are trademarks or registered trademarks of their respective holders.  
MoviePak is compatible with currently available RasterOps video graphics cards. Older versions may require an update. For additional information, please call 1-800-SAY-COLOR.



# Introducing DayStar's Charger. Fast Imaging for Today and Tomorrow!

Charger™ will change the way you work with images. Our goal is to make Mac imaging fast, predictable and easy... much like text is today.

The Charger solution is built on DayStar's expertise in Mac acceleration - clean, 100% compatible speeds that break the bottle-necks. We also bring you powerful new software from imaging workstations and a new kind of user interface.

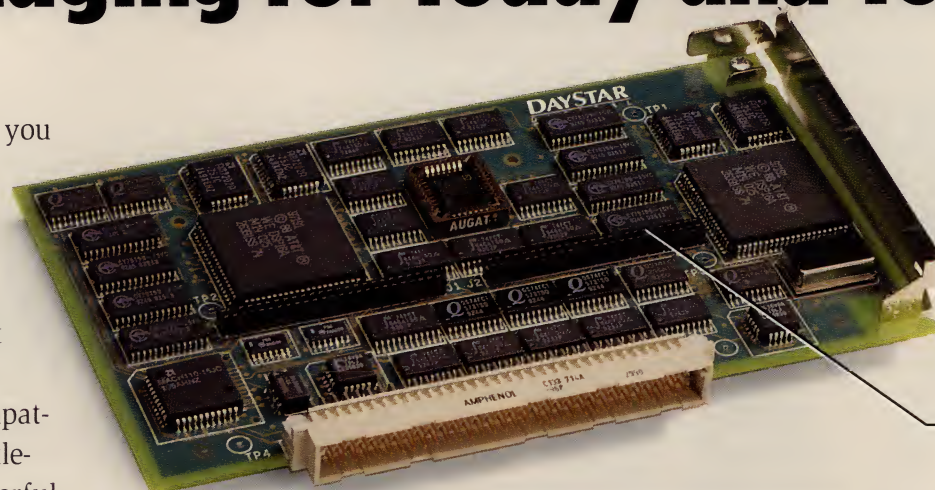
**Power Now.** Charger is a NuBus board that uses two superfast DSP chips working in parallel as an image processing "engine". This engine cranks important Adobe Photoshop functions at speeds that are 200 to 700 percent faster than a Quadra 950. We call these functions Charger Plug-Ins. They work automatically or as special plug-ins. You also get PowerPreview™, which lets you work in a real-time interactive environment.

**Free Software.** In addition to Charger Plug-Ins and PowerPreview†, you get award winning PicturePress 2.5 from Storm Technology... it runs up to five times faster with Charger! We also include Kodak's new Photo CD™ Access software with a complete library of sample images... ready to go!

**Power For The Future.** Beginning this spring, DayStar will offer even more Photoshop functions, and new "expansion modules" based on patented imaging technology from KEPS. All are upgradable from today's Charger!

**Charger Pro Module™**  
Get even more speed and high-end "adaptive filters" from the KEPS Prophecy™ workstation. (due Spring '93)

**Charger Color Module™**  
Accelerate the professional "KEPS Color Management System" with Charger. (due Summer '93)

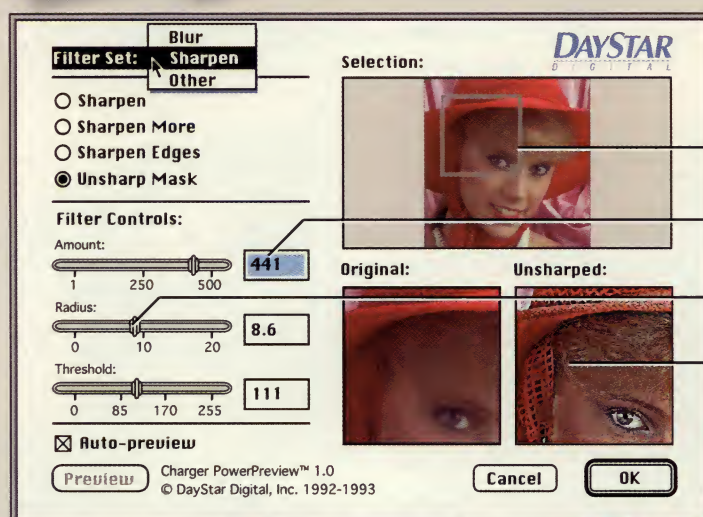


## Charger Plug-Ins™

Accelerated filters and functions for Adobe Photoshop™ 2.0.1 and 2.5, Adobe Premiere™ 2.0, Fractal Painter™ 2.0 and Fractal Sketcher™ 1.0.

Gaussian Blur, Blur More, Sharpen Edges, Sharpen More, Unsharpen Mask, Despeckle, Find Edges, High Pass, Resize and Rotate.

Expansion module connectors



## Charger PowerPreview™

Eliminate the guesswork within Adobe Photoshop.

Adjustable preview area

Precision input

Interactive slide controls

See real-time effects



## DayStar, The Accelerator Company.

We pioneered Macintosh acceleration and created an unmatched standard of 100% compatible performance. Also, don't forget our 3 year warranty, unlimited toll-free tech support, and a 30 day money back guarantee\*.



**DAYSTAR**  
DIGITAL

Call for an immediate fax brochure!  
1-800-972-8711 call 4 then choose brochure 2001

5556 Atlanta Highway, Flowery Branch, GA 30542 · (404) 967-2077, Fax: (404) 967-3018 · Also available on GSA Schedule #GS00K91AGS5047

Other brands and product names are trademarks or registered trademarks of their respective holders. Product specifications are subject to change without notice. ©1993 DayStar Digital, Inc. Adobe Photoshop is a trademark of Adobe Systems, Inc. which may be registered in certain jurisdictions.

\* Digital Signal Processors (DSP) running at 60 MHz. \*\*30 Day Money Back Guarantee is available through participating resellers only. \*Offers subject to change. Adobe Photoshop not included.